

The impact of urban form on public health

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Background

Many major chronic diseases of the 21st century are associated with physical inactivity, and in Australia, physical inactivity is second only to tobacco as the leading cause of death and disability. Redressing trends in declining levels of physical activity and increasing levels of overweight and obesity in both adults and children are national priorities in Australia.

Never before in human history, have so many people been so sedentary in the course of their daily lives. It has been suggested that trends in inactivity and weight status are partly due to the creation of obesogenic environments. Such environments discourage physical activity and encourage over consumption of food. In recognition of the importance of the built environment on health, recent special issues of public health journals such as the American (see *Journal of Public Health* 93:9 2003, *American Journal of Health Promotion* 18:1 2003 and *American Journal of Preventive Medicine* 28:1 2005) and books have been dedicated to the topic.

The urban form plays a critical role in influencing physical activity, particularly walking and cycling for transport. Active transport includes travel by foot, bicycle and other non-motorised vehicles and has been identified as a strategy that could increase community physical activity levels while producing other environmental and social benefits. Few adults or children use active modes even for short trips. Increasing traffic on the road and parental concerns about safety have contributed to the rapid decrease in children walking or cycling to school in recent decades. However, concerns over safety contributing to the problem. For example, in Melbourne it has been estimated that trips accompanying children to school constitute 17 per cent of all trips made between 8.30–9.00 am.

There is strong evidence that the built environment affects the transport-mode choices of both adults and children. A growing body of evidence confirms that neighbourhoods characterised by low density, poorly connected street networks, and poor access to shops and services, are associated with low levels of walking. Moreover, urban sprawl or low walkability appears to be associated with obesity. This may be partly due to long commuter trips to reach suburbs

located on the urban fringe. Frank et al (2003) found that time spent driving increases the risk of obesity and while time spent walking decreases the risk.

Another potential impact of urban form on public health relates to sense of community and mental health. The World Health Organisation estimates that by 2020, mental ill health will be the third leading cause of disability life-adjusted years globally. This has sparked interest in the impact of the urban form on mental health, particularly through its impact on the development of social capital or sense of community. Social capital is the features of social life (networks, norms and social trust) that enable participants to effectively pursue joint objectives and co-operation for mutual benefit. High levels of social capital decrease the risk of social isolation, a social determinant of health that increases the risk of premature mortality, cardiovascular disease and poor mental health. Some research indicates that there are higher levels of social capital in more walkable neighbourhoods suggesting that urban form is important.

The quality of the public realm appears to be important for both mental and physical health. Access to large, attractive public open space increases the odds of higher levels of walking, but is said to be restorative, reducing mental fatigue and improving well being. Real and perceived crime decreases the likelihood of walking in adults and children. Traffic exposure decreases walking in children because of parental concerns about safety. Reduced local walking, affects opportunities for casual interactions between neighbourhoods. Although a new field of research, it appears that access to convivial neighbourhoods not only encourages more walking, but also encourages interactions between neighbours thereby increasing sense of community, which in turn may beneficially influence positive mental and physical health in local residents.

How planners and others are dealing with these issues

National and state-government urban design and transportation policies constrain or encourage physical activity in communities, homes and schools. For decades there has been growing concern about the unsustainability of post Second World War planning principles adopted in Australia characterised by high motor vehicle dependency, segregated land use, disconnected streets, low residential density and limited public transport and local employment.

One response has been a return to more traditional planning principles (known as New Urbanism) that aim to create higher-density communities with mixed-use zoning (i.e., a combination of commercial and residential development); interconnected streets; and access to public transport. This development has been sparked by evidence that more traditional neighbourhoods generate fewer vehicle kilometres and result in more walking for errands, than other neighbourhoods. From a public health perspective, a recent study found that those living in high walkable neighbourhoods spent almost twice as much time weekly (137 minutes) walking for local errands compared with those living in low walkable

neighbourhoods, and about half as many residents were overweight (Saelens, Sallis, Black and Chen 2003; and Saelens, Sallis and Frank 2003). This suggests that more traditional neighbourhoods might deliver important health benefits.

Another aspects of urban form that has received less attention, is the impact of the design of public open space on residents. In Australia, a disproportionately large amount of public open space is zoned for organised sport (ovals for example) rather than for informal activities such as walking. Although used for organised sport, community and school ovals tend to be underutilised because they are not generally used by walkers, despite walking being the most popular form of recreational physical activity in Australian adults. Walkers are attracted to parks with more attributes. With thoughtful design, it is possible to design and redesign public open space for multiple users: sports people, walkers and passive recreational users. public open space landscaped with trees and shrubs selected to create interest and maximise visibility is likely to increase their use. Well designed public open space is an important component of the recreational mix providing opportunities for physical activity, social interaction and potentially a restorative environment providing some relief from the rush of life in the 21st century.

From a crime perspective, there is growing interest in the relationship between sustainable urban development and crime prevention through environmental design. Elements of environmental design can incorporate traffic calming and surveillance, and provide opportunities for interactions between local residents.

A number of initiatives are being adopted by planners, urban designers and transportation planners to create more walkable, human scale environments. For example, in Western Australia the Department for Planning and Infrastructure (DPI) is responsible for assessing all subdivision proposals rather than local government. In 1997, Department for Planning and Infrastructure released the 'Liveable Neighbourhood Community Design Code'. Based on New Urbanism principles, the code is currently being trialled (both formally and informally) in a number of new developments and similar guidelines have been adopted in other Australian states. Another important trend is 'Transit Oriented Development'. This aims to reduce the use of single occupant vehicles by increasing the number of trips by walking, bicycle, bus, street car, ferry or rail. Transit Oriented Development projects are located in higher density, mixed use, urban pedestrian districts that incorporate quality transit services.

What more can be done to improve the situation?

While there is growing recognition that urban form can influence health, environmental and social outcomes, there is much work to be done and unprecedented potential for cross-sector collaboration to work towards common goals. A multi-pronged approach is required to bring about change including:

- the incorporation of health impact assessments in new housing estates and in-fill developments;
- the widespread adoption of policy and practices that create more walkable neighbourhoods including incorporating connected street networks, higher density and mixed use planning, but also access to high quality transit, reduced exposure to traffic and high quality public realm including parks, main streets, local shops and landscape function was mostly stable although it decreased in some areas during periods of poor rainfall;
- enhanced incentives to use public transport, combined with disincentives to use motor vehicles;
- the provision of high quality infrastructure to supports active modes of transport (cycle paths and cycle parking, for example) including amendment to building regulations to ensure access to showers and safe cycle parking in all new and refurbished buildings;
- mass media promotional campaigns that encourage the use of active modes of transport;
- ongoing evaluation of efforts to improve urban design policy and the study of its impact on different population groups (children, older adults , for example);
- age-friendly urban design that caters for young and older members of the community; and
- research on the independent effects of urban form on the creation of social capital, sense of community and mental health.

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