The health of the planet and the health of the people are two vital interlinked concerns our society must address now for the sake of future generations. The issues of climate change and obesity are currently both high on many agendas, including here in South Australia. They are also issues which share some of the same contributing factors. The urban form of our towns and cities impacts on human behaviour, and it is this behaviour that has contributed to both climate change and the changing health of the community.

Historically, urban planning, as outlined in the article by Dodson and Burke, was a response to the increasing prevalence of disease. Its initial aim was to improve and protect the health of the community. Since those early days, however, the role for planning and its links to health have changed. The focus and health-supporting attributes of urban planning have made way for other factors in the urban environment such as motor vehicles and economic development, which have ultimately had negative effects on both health and climate change.

This issue of the Bulletin focuses on the role planning plays in the built environment and on the relationship between planning and health. Planning has an important role to play in supporting the health of the community through creating, as well as influencing change in the built environment. Billie Giles-Corti outlines some of the research and evidence linking the built environment with physical activity levels. Physical inactivity is a significant contributing factor to levels of overweight and obesity in Australia, as in other countries.

Walkability and access to public transport are key features of a neighbourhood that support active living, and therefore impact on the health of the community. The introduction of cars transformed the design of our cities and suburbs, and it is these changes to the built environment that appear to be harming our people and the environment. Transport is a key factor in this discussion and Peter Tisato explores transport issues and the subsequent positive and negative impacts on health in his article.
Some of the other relationships and impacts of planning and the built environment on health are also explored in this issue of the Bulletin. The links between living environments and health in Indigenous communities go back to the earlier roots of planning, and Paul Pholeros highlights some of the basic housing health issues still being documented and addressed in these communities.

Carol Whitzman addresses the use of spatial planning to assist in the prevention of violence, while also looking towards a broader consideration of the issue to provide spaces of refuge and safety, rather than the typical current emphasis on preventing one-off criminal acts. Ron Somers considers other aspects of safety, exploring the ways that people interact with the built environment and the reduction of hazards through planning and design.

The role of health impact assessment as a tool for measuring and assessing the impacts on health in relation to development and infrastructure is examined by Frank Callaghan and Chris Lease.

The breadth of issues identified as relating to health and planning is part of the problem itself as it is difficult for the planning and development system to cope with such an array of complex interests. Planning has become the conduit for a vast range of community issues including stormwater and flooding, heritage, significant trees, biodiversity, energy efficiency, climate change and many others. Reconciling these sometimes competing interests within a resource constrained system is very difficult.

In the current cultural and political climate there is a focus on an economic growth and efficiency approach to planning and development, and issues relating to planning for health and wellbeing are competing within these constraints. However, projections of the future health of the community are dire enough to warrant high levels of support for the changes needed.

As pointed out by Dodson and Burke, we need to draw practitioners from both health and planning disciplines to work together in research and policy to develop new directions for the built environment. Projects that showcase healthy planning in practice, such as those presented in this Bulletin by the Heart Foundation, including the Active Living Coalition, are important cross-sectoral and cross-discipline approaches that are helping to raise awareness and lead change in this area, and should be supported by all levels of government.

Planning is a long process. Outcomes can take many years from policy formulation to development on the ground, so change must start now. A return to the development of built environments that support community health and active living is an important aspiration for the community and an imperative for planning.

Making cities healthier: Reconnecting public health and urban planning

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Introduction

Public health practitioners and urban planners face new challenges in managing the health of populations through the design and management of cities. While these two disciplines share a close early history, their separation in recent decades has weakened their respective capacities to secure the health of urban populations. With the majority of Australians living in cities and the emergence of new population health challenges, there is a critical need to reassess the relationship between public health and urban planning. Responding to this challenge involves at least two key strands. The first is to advance our understanding of contemporary urban–health relationships through more and better research. The second involves reconnecting public health managers and researchers with their colleagues in the urban planning and research fields. This paper seeks to outline this agenda by identifying some of the shared early origins of urban public health and urban planning, reviewing the contemporary state of knowledge of urban–health relationships in urban form and transport, and assessing the opportunities for re-engagement between public health and planning to meet the new urban health challenge.

Shared origins

Modern urban planning and public health were born as twin disciplines out of the misery and horror of the 19th century industrial city. Rapid urbanisation due to the development of industrial capitalism and rural change drew unprecedented numbers of people into cities. And the industrial cities they occupied were foul places. Industrial activity often commingled with residences within tightly compressed urban space, while industrial emissions, effluent and waste were disposed of in a haphazard, informal and unhygienic way. Disease was rampant, with regular outbreaks of contagion spreading among poorly nourished and housed working classes; and fires tore easily through dense and poorly constructed dwellings.

From the mid 19th century the middle classes of the Victorian city reacted against the horrors of the slums, giving rise to paired movements which formed the basis
for modern public health, urban planning and development control. The first movement involved sanitary reform, while the second movement promoted the availability of good quality housing for the working classes, with residential areas clearly separated from industrial and noxious land uses. Together the sanitary and housing programs gave rise to new ideas about cities, as exemplified in the ‘garden cities’ movement, ideas that were influential in the planned expansion of cities such as Adelaide. The result in Australia was the rise of new suburban forms comprising extensive zones of single storey detached dwellings on large lots separated from industrial, commercial and retail land uses.

Pre-war development was primarily formed around rail transport, allowing residents to access the city and the majority of their needs by train and tram or on foot. The rise of affordable motoring ensured that from the mid 20th century suburban development based on private automobile transport transformed the layout and form of our residential areas. Though still highly segregated from retail, business or industry, new suburban development is now heavily automobile dependent, reducing the level of physical activity in transportation. The possibility of a sedentary suburbia has given rise to new anxiety about the health of urban populations.

As a result of this history, there are two closely linked contemporary urban health issues that connect the concerns of urban planners with the responsibilities of public health managers. These issues are the relationship between health and urban form, and the relationship between health and transport systems. This is in part a false division, as much of the planning literature views urban form and transport systems as forming an interconnected whole. Nonetheless, the literature on these issues is underdeveloped. Health and planning scholars and practitioners face a major challenge to expand the conceptual, methodological and empirical knowledge base to better understand these contemporary urban–health relationships. The next two sections briefly review some of the urban planning and health literature in this area.

Health and urban form

Urban form describes the bulk, density and distribution of buildings within cities. There is a relatively modest research base that establishes the connections between urban built form and health outcomes. While some associations have been found between urban form and individual behaviour, the health dimensions of these relationships remain unproven.

It has been argued that suburbs consisting of dispersed low-density homogenous residential land uses influence health outcomes through their design characteristics. Poor street connectivity within residential areas and long distances to services is seen as promoting dependence on automobiles that in turn reduces physical activity. But measurement of the built form differences remains problematic. A ‘Metropolitan Sprawl Index’ (MSI) was used to assess the density, accessibility and activity mix of urban zones in the US. In a separate study the MSI assessed the health impacts of urban form, the authors finding a relationship between higher MSI and residents’ body mass index (BMI) and obesity levels. Those in more sprawling zones were likely to walk less, weigh more and have greater prevalence of hypertension than those in more compact zones.

Possible links between sprawl and mental health have also been investigated, with the result that street accessibility and land-use mix were found to be most significant in predicting the prevalence of chronic conditions such as heart disease and hypertension. The research, however, found no relationship between the MSI and mental health. Other researchers used measures of ‘walkability’ relative to residents’ weight and levels of physical activity in two San Diego neighbourhoods. They found that residents of the ‘high walkability’ areas undertook 70 minutes more physical activity per week than those from the ‘low walkability’ neighbourhood, although they cautioned that the nature of causality remained unknown. Other studies have used housing age as a proxy for urban design, with older housing (especially pre-WWII) areas considered more ‘walkable’. Several studies found that residents of older housing tended to partake in walking at higher levels than those in newer housing.

In Perth, research has been conducted on the role of social and physical environments in determining individual physical activity. The authors found that while individual and social factors exerted the greatest influence on physical activity levels, the level of access to recreational spaces and services did, in part, determine whether these were used.

In addition to physical activity, there are concerns about land-use planning and its relationships to healthy eating and nutrition. Fast-food outlets made prominent via oversized outdoor advertising and illuminated signage have transformed both retailing and eating habits. US literature has reflected unease in the health profession over the spatial availability of fresh food, especially fruit and vegetables, with many neighbourhoods having limited opportunity to purchase such goods. Recent Australian research suggests that such ‘food deserts’ are thankfully not yet found in our cities. However, important questions about the opportunity for households to engage in domestic fresh food production via backyard gardens (which also imply physically active behaviour) have been raised by Australian urbanists.

A number of definitional and methodological difficulties in measuring urban built form remain. There are problems in
establishing causality between, for example, urban form, physical activity and nutrition—individuals may select residential areas that best suit their desired behaviour patterns, rather than those patterns being generated by the built form of the area. Other problems are definitional, such as defining complex notions of ‘walkability’ or ‘sprawl’ or using simple measures such as housing age as a proxy for multivariate design factors. These problems continue to pose challenges for both urban planners and public health researchers in comprehending and addressing urban–health relationships.

Health and transport
The impact of transport systems on the health of populations is already the subject of much research, including a strong emphasis on the issues of vehicle crashes and emissions. Links between transport systems and other health outcomes are not well understood at present. A modest body of research has shed some light on these issues although many research questions remain.

Investigation of factors contributing to rates of non-motorised (i.e. physically ‘active’) travel found that transport systems in combination with urban form had a modest and statistically insignificant effect on walking and cycling, in part because exogenous factors such as topography and rainfall exerted greater influence. In an assessment of individual travel behaviour relative to urban environment and body weight, greater land-use mix and greater street connectivity and accessibility were associated with lower obesity levels, while time spent in automobiles was positively associated with obesity. In New South Wales, a study found that higher levels of car use were associated with overweight and obesity. Other researchers assessed the role of individual and contextual factors in determining longitudinal travel behaviour. Their multivariate analysis indicated that suburban density and built form factors played a positive role in supporting active travel. However, these differences were largely erased after accounting for individual and sociodemographic factors.

A particular methodological issue in this body of research is the difficulty in segregating out the effect of specific factors in research on real cities. Locations with higher residential densities also tend to be those that are located in the inner-city, were developed prior to WWII, have more connected street systems, feature higher quality public transport services, and have a greater mix of land uses. Isolating the effect of any one variable is methodologically difficult.

While the literature on urban health outcomes in relation to urban form and transport needs further development, it is nonetheless possible to discern an emerging relationship between these fields. In general there appears to be a positive association between higher density urban environments, levels of planning support for non-automobile transport, and higher rates of physical activity. However, some cautions should be noted. There remains a degree of uncertainty even within the mainstream health literature over the links between physical activity, body weight and health outcomes, especially where the BMI measure is used. Further, while higher urban densities are increasingly viewed as strengthening health outcomes, the extent and limits of this relationship are not known. It is conceivable that density only provides positive effects up to a certain level, beyond which other, adverse, health impacts due to urban density may become apparent—in relation to crowding and access to open space, for example. Clearly, more research is needed to tease out urban–health links across a range of urban factors.

Rejoining public health and planning research and practice
Perhaps the greatest challenge in strengthening our understanding of urban health and filling the research gaps identified above is to draw public health and urban planning researchers and practitioners into a new research and policy engagement. This effort must develop at two levels. First, there is a need for researchers in these fields to collaborate more intensively on investigating urban–health relationships. This includes sharing respective current disciplinary knowledge, perspectives and methodologies, as well as collaborating on new research that develops these into a more coherent and unified approach. Second, there is a critical need for public health and urban planning to be reunited in the policy sphere.

The divide between these areas of government policy means that public health practitioners are often unable to articulate their awareness of emerging urban–health relationships into progressive engagement with urban planning and policy. Planners, by comparison, appear to show a distinct blindness to new public health issues in the preparation and implementation of urban strategies and plans. State health agencies are making tentative moves to assist local governments with their planning, although most do not provide quality research-based guidance on key aspects of local land-use planning or feed such advice into state governments’ metropolitan strategies. Not surprisingly, few local authorities consider either physical activity or nutrition issues as part of their urban planning frameworks. Planning regulation is often institutionally complex and bureaucratic and potentially opaque to health practitioners. Urban decision makers may therefore continue to allow the development of a built form and transport system that fundamentally acts against the objectives of their public health policies. Health policy needs to engage with planning strategy to ensure that we produce healthier urban environments. To do this we will continue to need high-quality cross-disciplinary public health and planning research that can illuminate and guide the development of our thinking about the health of our cities into the future.
A social–ecological perspective on health in urban environments

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Our cities are dynamic places where increasing numbers of people are choosing to live their lives. The present built form of the city closely reflects: (i) the geography and ecological history of particular places; (ii) the historic interactions between founding populations of people; (iii) how they used the natural resources they found; and (iv) how they decided to build infrastructure in their new environment.1-3 In any city you can see how urban settlement patterns have been shaped by cumulative decisions that at first influence and then determine the trajectories of urban, industrial and infrastructure developments. Global drivers of change, such as climate variability, globalising markets, terrorism, rapid urbanisation, increasing human populations, rising per capita consumption and risk of pandemic disease also influence the development of cities.4,5 These factors represent some of the main challenges for the future health of people in cities and their urban bioregions, the ecological systems on which cities depend.6

Urban environments and health

Urban environments are rapidly changing, and people as individuals and as part of organisations are constantly adapting to new opportunities and threats. Not surprisingly, along with the benefits that urban life brings to many, there are a range of old and new health risks that are now affecting increasing numbers of individuals and their communities. In the 20th century, public health, civil engineering and environmental science were successful in reducing the incidence of health problems through point source treatment of clean water, the removal and treatment of wastewater and garbage, and the regulation of industrial wastes, effluents and emissions.7, 8 The rising tide of 21st century public health problems, such as obesity, cardiovascular disease and depression, are different to past problems that could be directly attributed to infectious agents, toxic chemicals, poor industrial design and a lack of effective environmental management.

The new diseases of urban living arise more from the complex way we now live, eat, travel, build, play and work in urban environments, rather than from any single agency. Our health is now an expression of a complex

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web of interactions that have not been previously faced during human evolution and these interactions are more subtle and indirect in their action. They include factors such as: (i) the time we spend commuting to work; (ii) how we individually respond to the abundance of energy-rich foods and drinks brought to us through the industrial food chain; (iii) the availability or otherwise of opportunities to be physically active; and (iv) the time we have for self-reflection and family. While these factors act on individuals, all have become highly socially organised and mediated through changing cultural aspirations and norms, urban systems of governance, infrastructure, modes of transport, and the supply and demand of urban goods and services such as food, water, energy and transport.

Cities as social–ecological systems

A social–ecological perspective focuses on cities as ‘urban ecosystems’, as distinct from the traditional ‘ecology in the city’ approach, which addresses the distribution, abundance and management requirements of biodiversity in the city.8 The urban ecosystem approach views the city as a distinct type of ecosystem characterised by the linkages between social and ecological processes and asks questions about the spatial, systems and social context of urban people and the extent of their interdependence on their urban bioregion. For example, from where do urban people derive their water, energy and food; where do people spend most of their time; how far do they travel to work, school and recreational outlets; and what social–ecological conditions contribute to their cultural identity, sense of place and health? The urban ecosystem approach also identifies our interdependence on natural systems in remote catchments and urban environments to provide biodiversity and ecosystem services (i.e. those unpriced ecological processes provided by natural systems that clean our water and air, pollinate our plants, recycle our nutrients and enhance our urban quality of life and our health through the rejuvenating aspects of recreation). The urban ecosystem approach is a human-based ecology that recognises the critical aspects of urban systems of governance in sustaining urban quality of life. In particular, urban people have a strong social and institutional dependence on reliable flows of goods and services such as water, energy, food, construction materials, transport, health services, information and capital to sustain health.

As an example, the Extended Urban Metabolism Model9 (Fig. 1) provides a useful social–ecological framework for linking the industrial production of these urban resource inputs (food, materials, water, energy and information) to the spatial patterns and organisational processes that characterise urban consumption. Resources, both physical and social, are transformed, or ‘metabolised’, and distributed through urban governance systems and infrastructure networks with emergent consequences for people and urban environments. Research can be directed at developing a better understanding of the effect of these processes on the health of people in cities. For example, what factors increase the rates of industrial production of high-energy, low-cost foods and what are the consequences for targeted populations of urban consumers? Or, what are the social and health costs of inadequate transport infrastructure and consequent loss of personal and family time from long commutes to work and sedentary lifestyles?

Research questions generated from a social–ecological perspective

A social–ecological perspective could enable research into:

- The spatial and temporal dynamics of social and environmental determinants of human health in urban systems.11 Who gets sick and where do they live? What are the relative contributions of social versus environmental factors? What types of interventions are available and appropriate?

- Measures of health in different urban forms.12,13 What contribution does urban pattern and social–ecological processes in urban environments make to the functionality of urban habitats? Can we identify the characteristics of dysfunctional and functional urban landscapes and incorporate this knowledge into better urban planning, design, construction and management?

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Figure 1: The Extended Urban Metabolism Model adapted from Newton et al.10

This simplified version of the model provides a useful checklist of inputs, processes and outcomes that need to be considered in a social–ecological framework.
• Urban resilience to shocks and disturbances caused by natural and human disasters. Can we identify aspects of our social, natural and built environment that make us vulnerable? Can we build resilience into our infrastructure and the way we organise ourselves as communities?

• Maintenance of ecosystem services and food production in urban environments. In both cities and the rapidly urbanising rural lands that surround them, how important is it to conserve natural systems and sustain agricultural lands for healthy local food production? What role could this play in preserving our long-term environmental and food security?

• Social capital for coping with and adapting to change in urbanising landscapes. How prepared are existing rural and urban communities to adapt to the pace and scale of changes caused by rapid urbanisation? What are the health consequences of the inability of local people to adapt to changing urban transport patterns, social processes and globalisation?

• Measures of urban quality of life that address the effects of surplus consumption. What educational changes, and access to information and knowledge, are necessary to raise awareness about the individual health consequences of surplus consumption, particularly of food, but also of energy, water and construction materials? What policy platforms are needed to create an enabling environment for better urban health?

This social–ecological perspective on the complex nature of emerging public health problems presents a major new challenge for how urban society generates the understanding required to find an integrated set of solutions that address these complex problems. Partial solutions generated by traditionally distinct professional disciplines are unlikely to match the spatial scale and pace of these emerging health problems in urban environments. However, more integrated solutions will require health professionals, epidemiologists, engineers, environmental scientists, urban planners, designers and managers, policy specialists, economists and social scientists to come to grips with working together in new ways. For example, an integrated approach to urban science would require interdisciplinary knowledge from many areas to address the complex social–ecological interactions that are contributing to the rise of overweight and obese people in increasingly dysfunctional urban environments. Researchers working in partnership with people in urban practice, policy and communities will be an essential part of a research agenda for sustainable development that would address these complex health problems. Changes will also be needed in how we plan, design, construct, monitor and evaluate old and new urban developments to identify what interventions enhance the prospects for people to improve their health as part of their day-to-day interactions in rapidly urbanising landscapes.

Conclusion

To have any effect on the health of people in urban environments, urban society will require the integration of new urban science knowledge into urban planning and the design and construction of healthier homes, workplaces, community centres, recreation areas, mobility and transport infrastructure. Our built form, the basic template in which we live out the majority of our lives and social interactions, must be planned, designed and constructed to encourage, not hinder, healthy behavioural changes in food availability, mobility options, workplace practices and lifestyle choices. In a broader sense, an urban science agenda is needed not only to inform urban policy, planning and design but to also educate people about the consequences of and trade-offs around the choices they make. In the end, cities, as engines of creativity and innovation, may also be our best hope for providing solutions to many of these pressing problems and long-term sustainability issues.

For more information:
CSIRO Sustainable Ecosystems http://www.csiro.au/erg/cse.html
ECOS Magazine http://www.publish.csiro.au/?nid = 214

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The impact of urban form on public health

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Background

Many of the major chronic diseases of the 21st century are associated with physical inactivity, which is second only to tobacco as a leading behavioural risk factor causing death and disability. Declining levels of physical activity, coupled with global concern about increasing levels of overweight and obesity in both adults and children, have focused attention on broader determinants of these trends, including the impact of the urban form.

Urban form plays a critical role in influencing physical activity, particularly walking and cycling as forms of transport. Active transport includes travel by foot, bicycle and other non-motorised vehicles. Increasing active transport has been identified as one strategy that could increase community physical activity levels as well as produce environmental and social benefits. It has been estimated that around 20% of all motor vehicle journeys during weekday morning rush-hour periods are short journeys by parents dropping children at school. Of concern over the last decade is the rapid decline both in children walking or cycling to school and in adults using active transport modes even for short trips. Higher levels of vehicle traffic make it less safe for those who have to (or choose to) use active modes, particularly around schools.

The built environment—land use, transportation systems and urban design—appears to influence the transport-mode choices of both adults and possibly children. A growing body of evidence confirms that neighbourhoods characterised by poorly connected street networks, low levels of mixed-use planning, poor access to shops and services, and low density are associated with lower levels of walking. Moreover, urban sprawl or areas of low walkability are associated with obesity. This may be partly due to long commuter trips which decrease opportunities for local walking, but may also result from additional time spent being sedentary while driving. Frank and colleagues found that time spent driving increases the risk of obesity, while time spent walking decreases the risk. Similarly, an Australian study found that driving to work was associated with an increased probability of being overweight or obese.
The quality of the public realm may also influence walking. Access to large, attractive public open space has been found to result in higher levels of walking,18 and exposure to nature is said to be restorative, reducing mental fatigue and improving wellbeing.19 Walking locally also increases opportunities for casual interactions with neighbours and the potential to increase sense of community.20 Together, these results suggest that access to convivial neighbourhoods that encourage interaction and give residents a sense of place may be important not only to increase walking, but also to help influence mental and physical health and create a sense of community in local residents.

What role for planners?

Global, national and state government urban design and transportation policies can either constrain or encourage physical activity in communities, homes and schools.21 For decades there has been growing concern about the unsustainability of post-World War II planning principles adopted in the USA and Australia, characterised by disconnected streets, low residential density, and limited public transport and local employment.22

Planners have a critical role to play in responding to these concerns. Planning approaches such as ‘New Urbanism’, ‘Transit Oriented Development’ and ‘Smart Growth’, which use traditional planning principles, are required in order to create compact pedestrian-friendly neighbourhoods.23 Neighbourhoods designed using these approaches aim to encourage walking by planning higher density communities with mixed-use zoning—a combination of commercial and residential development, interconnected streets and access to public transport.24 Creating more ‘liveable’ neighbourhoods has potential sustainability benefits by reducing car use, creating a greater sense of community, increasing access to services and making more efficient use of land.25

Although receiving less attention, a disproportionate amount of public open space in Australia is zoned for organised sport (e.g. ovals) rather than for informal activities such as walking.26 Community and school ovals are spread throughout metropolitan and regional areas in Australia. However, these resources are underused because walkers and other casual users are less likely to use public open space with few attributes.18 With thoughtful design it is possible to create and redevelop public and school ovals to cater for multiple users: sports people, walkers and passive recreational users, children, adolescents, young people, older people and families. Creative landscaping with trees and shrubs selected to maximise visibility and create interest and varied walks will attract more users and increase surveillance, making the space safer for all users. 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 that provides some relief from the rush of life in the 21st century.

A number of initiatives are being adopted by planners, urban designers and transportation planners to create more walkable, human scale developments. For example, in Western Australia the state government through the Department for Planning and Infrastructure (DPI), rather than local government, is responsible for assessing all subdivision proposals. In 1998 DPI released the Liveable Neighbourhood Community Design Code.27 Based on New Urbanism principles, the code is currently being trialled (both formally and informally) in a number of new developments. Similar guidelines have been adopted in other Australian states. The School of Population Health at the University of Western Australia is currently undertaking a longitudinal study of residents who have moved into ‘Liveable Neighbourhoods’ compared with other (traditional) areas. Known as the RESIDential Environment Project (RESIDE), studies such as this will provide invaluable information about the impact of urban design on local residents.28

What action is required?

There is growing recognition that urban form can influence health as well as environmental, economic and social outcomes. There are also unprecedented opportunities for cross-sector collaboration to work towards common goals in improving urban form. A multi-pronged approach is required to bring about change. Such an approach includes:

- the adoption of policy and practices that create more walkable neighbourhoods incorporating connected street networks, higher density and mixed-use planning; as well as offering access to high-quality transit, reduced exposure to traffic and a high-quality public realm including parks, main streets and local shops
- the incorporation of health impact assessments into new housing estates and in-fill developments
- incentives to build and use high-quality transit, combined with disincentives to use motor vehicles
- integrated public transport systems that allow bicycles on trains and buses, including in peak hour
- provision of high-quality infrastructure to support active modes of transport (e.g. cycle paths and end-use facilities for cyclists such as safe cycle parking and showers)
- mass media promotional campaigns that encourage the use of active modes of transport
• comprehensive evaluation of natural experiments designed to improve urban design policy, including studying the effects on different population groups and monitoring any unintended negative consequences

• age-friendly urban design that caters for the young and older members of the community alike

• research that studies the independent effects of urban form on the creation of social capital and sense of community.

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‘Whoever studies and observes these things may be able to foresee most of the effects which will result from the changes...’

Hippocrates

Introduction

Human beings not only have an effect on the environment but, for better or worse, their health is affected by the environment. As far back as 400 BC, Hippocrates recognised this link between the environment and health in his treatise ‘On airs, waters and places’, which provided an assessment of the likely human health impacts resulting from differences in climate, soil, water, mode of life and nutrition. In the introduction to the treatise Hippocrates states that to investigate ‘medicine’ (read health) properly, these environmental and behavioural factors must be considered. Hippocrates’ work can be considered a basis for what we now term ‘health impact assessment’ (HIA), which is defined by WHO (1999) as:

‘…a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population.’

In our increasingly urban age, the built environment and its impacts on human health are a particular focus of the HIA effort.

The built environment is everything that is not part of the natural environment and includes buildings, roads, paths, other infrastructure and mining operations. In recognition of the nexus between the built environment and health, the South Australian Department of Health engages with other government agencies, the private sector and non-government organisations to undertake informal HIAs of development proposals so as to obtain optimal health outcomes arising from the built environment. This engagement with other entities is undertaken within a framework of the WHO’s founding definition of health, namely:

‘Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.’

and as mediated by subsequent policy developments such as the Ottawa Charter for Health Promotion, which adopted a socioecological approach to health.

In keeping with this all-encompassing approach, HIA attempts to incorporate the key determinants of health, which have been categorised by enHealth as fixed (genes, gender, age); social and economic; lifestyle and behaviours; access to services; and environmental. The HIA process is not the sole domain of the Department of Health, as many of these key determinants of health are the responsibilities of other government departments.

The legislative context

Under the Development Act 1993 (the Act), the only development that must be referred to the Department of Health for advice is a crematorium. Although the Act does not specifically require HIA, it does require consideration of the economic, environmental and social aspects of major developments during assessment. All three of these aspects may influence the health of the affected population.

While there are no legislative requirements or formal administrative arrangements with other government agencies for HIAs in South Australia, many agencies perceive a role for either the Department of Health or their own agency to examine the health impacts of development proposals. Developments (as defined by the Act) informally referred to the Department of Health for input generally fall into one of three categories: major developments, developments in the unincorporated areas, and land divisions requiring onsite wastewater disposal. Other major proposals referred for comment include those for mining and for South Australian Government infrastructure.

The fact that health advice on the potential impacts of developments is being sought, despite there being no legal mandate to do so, demonstrates that health is a key concern of other government operations. An example of current interdepartmental collaboration for HIA is the Department of Health’s involvement in a series of workshops which developed criteria for the selection of the route of the Northern Expressway. The selection of transport routes was traditionally considered as solely a transport authority’s function, but the magnitude of this road development warranted a multidisciplinary approach.

The Department of Health also provides input into the development of South Australia’s Planning Strategy, including Regional Plans (e.g. Yorke Peninsula Spatial Plan). This advice has traditionally focused on the inclusion of planning provisions to ensure access by all the population to health services, and to address traditional environmental health issues, for example, the separation
of industry from sensitive land uses. More recently, input has broadened considerably and has included elements for active living and transport; equity issues in relation to accessibility to recreational areas; and urban regeneration.

South Australia’s Planning Strategy is implemented via Development Plans, which are specific to each local government area as well as the ‘out of council’ areas that make up 85% of South Australia’s land mass. Because development plans must be reviewed every 5 years, they are constantly undergoing modification (Development Plan Amendments). The Department of Health is invited to comment at various stages during some of these modifications. These comments provide an opportunity to advise on a number of traditional environmental health issues, such as wastewater, mosquitoes and site contamination; and on positive and negative impacts related to health, including access to services, ageing in place, greenhouse gas emissions, effects of climate change and impacts of major transport corridors.

The HIA process
The Department of Health achieves HIA through a multistage process based on enHealth’s Health Impact Assessment Guidelines. In general, this process involves the following stages:

- **Community consultation**: enHealth advocates that this should occur at the scoping stage and onwards, depending on the significance of the proposal. This accords with the Ottawa Charter’s declaration of the need to empower communities.

- **Screening**: identifies proposals likely to have significant health impacts.

- **Scoping**: determines what the pivotal health issues are for the various major developments and other significant proposals.

- **Profiling**: attempts to identify and better characterise the population affected by the development, and is governed by the screening and scoping process. Where the potential impacts are significant (e.g. the expansion of a major foundry abutting a residential area), it is conducted in great detail using available statistical information such as existing population health data and socioeconomic status.

- **Risk assessment**: uses the information provided by the scoping and profiling steps to identify the likely impacts and the degree of risk they pose.

- **Risk management**: identifies potential strategies for mitigating risks or enhancing benefits.

- **Health impact statement**: summarises the impacts (benefits and risks) of the proposal.

- **Decision making**: generally not made by the Department of Health but the decision makers are informed by the health impact statement.

Each stage in the process informs the others in an iterative series of actions.

To better illustrate the process in practice, two Major Development proposals (gazetted under the Development Act 1993) are provided as examples.

<table>
<thead>
<tr>
<th>HIA stage</th>
<th>Marina</th>
<th>Foundry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public consultation</td>
<td>Extensive formal and informal—conducted by proponents, local government and Planning SA.</td>
<td>Extensive formal and informal—conducted by proponents, local government, state and Commonwealth parliamentarians and Planning SA.</td>
</tr>
<tr>
<td>Screening</td>
<td>Declared Major Development by Planning SA.</td>
<td>Declared Major Development by Planning SA.</td>
</tr>
<tr>
<td>Scoping</td>
<td>Traditional environmental health areas of wastewater, water quality, site contamination and noise. Social impacts—potential to revitalise town and district (benefit), and potential to exacerbate financial and racial social divisions (risks).</td>
<td>Foundry abuts residential zone; hence, focus was on the traditional environmental health areas of emissions to air, noise, site contamination, stormwater, traffic and amenity.</td>
</tr>
<tr>
<td>Profiling</td>
<td>Highest proportion of Aboriginal population of all local governments in the State. Many Aboriginal people transient, particularly during hotter months as visiting from homelands. Aboriginal populations tend to have a very low health status.</td>
<td>Data from the Social Health Atlas of South Australia indicates that local residents have a high rate of relative social disadvantage and a relatively low health status.</td>
</tr>
<tr>
<td>Risk assessment</td>
<td>Generally qualitative (although noisily modelling quantitative) with close liaison with Department for Families and Communities.</td>
<td>Generally qualitative with close liaison with EPA and proponent on very detailed toxicological health risk assessment for emissions to air.</td>
</tr>
<tr>
<td>Risk management</td>
<td>Proponent generally compliant with guidelines. Guidance from Department for Families and Communities to mitigate social risks.</td>
<td>Reiterative process with proponent modifying processes and design to manage risks.</td>
</tr>
<tr>
<td>Health impact statement</td>
<td>Department of Health submission outlined potential benefits and risks.</td>
<td>Department of Health submission stated that proponent’s approach had been exemplary and that all the Department’s concerns had been addressed.</td>
</tr>
<tr>
<td>Decision making</td>
<td>Approved by the Governor of South Australia on the advice of the Minister.</td>
<td>Decision yet to be made but process will be the same.</td>
</tr>
</tbody>
</table>
The future

While there are significant benefits to be gained through the HIA process, there has been some reluctance to mandate it through legislation. HIA has been criticised in the past as an impediment to development on two grounds—first, a perceived emphasis on the negative impacts in the process and, second, the assessment process adding an unnecessary layer of bureaucracy (i.e. another layer of impact assessment). The intent of HIA is to maximise the potential positive health impacts, while minimising the negative ones. However, the process should be considered as a tool to enable decision makers to be better informed of the potential consequences (across a range of disciplines) of development, and hence lead to optimal decisions. It should always be remembered that it is impossible to have no risk in human activities, including the built environment. The complexity of HIA makes it inherently difficult to determine the extent that the net health outcomes of a development will be either beneficial or detrimental. The impacts are dependent on the interaction of a variety of factors that may or may not lend themselves to a definitive statement of benefits and risks, let alone the acceptability of such to the various stakeholders. HIA is only one tool to inform the decision makers and should not be used alone to direct the assessment or prevent development per se.

An emphasis on HIA being a tool to assist rather than direct decision makers should be the focus of any argument to have HIA legislatively mandated. In a South Australian context, it is considered that formalisation of HIA in major development proposals could be integrated into existing processes with minimal extra demands on the proponent. This should lead to better management of developments, and hence better health, social, environmental and economic outcomes for all South Australians.

It is an objective of the Department of Health to expand the capability of the public health workforce to undertake HIAs, either formally or informally, particularly in local government. While the assessment and management of risk can be a highly detailed process that requires significant training and experience, general skills in HIA, particularly the screening, scoping and profiling stages, can be imparted with relative ease. These skills would allow the public health workforce to add specific local health impact knowledge to the development assessment process.

Conclusion

The adoption of the HIA process by the Department of Health has resulted in a more holistic consideration of health in the built environment and the development process. While this is largely conducted informally in South Australia, many jurisdictions in Australia and throughout the world have required the inclusion of some form of HIA in their development assessment processes to focus attention clearly on health in the built environment.

References

1. Hippocrates (400 BC). On airs, waters and places. Online ebooks@adelaide, University of Adelaide http://etext.library.adelaide.edu.au/h/hippocrates/airs/


Transport and public health

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South Australian Department for Transport, Energy and Infrastructure

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South Australian Department for Transport, Energy and Infrastructure

Impact of transport on public health
Transport plays a major role in the way we live. Over time, transport development has had positive impacts on social and economic development, and in turn benefited public health. In recent times, however, there has also been growing evidence of negative impacts of transport on public health. Table 1 briefly summarises the positive and negative impacts of transport on public health.

Table 1: Key impacts of transport sector on public health

<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility to: goods and services, employment, other people, leisure activities and other opportunities</td>
<td>Air pollution</td>
</tr>
<tr>
<td>Freedom</td>
<td>Global warming</td>
</tr>
<tr>
<td></td>
<td>Noise</td>
</tr>
<tr>
<td></td>
<td>Accident risks</td>
</tr>
<tr>
<td></td>
<td>Personal risks in public</td>
</tr>
<tr>
<td></td>
<td>Physical inactivity</td>
</tr>
<tr>
<td></td>
<td>Social isolation / social exclusion</td>
</tr>
</tbody>
</table>

Positive impacts
The positive impacts occur indirectly through the access that transport provides to economic and social goods, services and opportunities, which in turn are key drivers and important components of human wellbeing and quality of life.

Transport provides access to employment and jobs, allowing people to earn and accrue material wealth, and experience the personal stimulation offered through employment. It provides access to education facilities, enabling the population to acquire skills to increase their productivity and effectiveness as members of society. Transport also gives people access to the range of services required for an enjoyable life, and the freedom to explore the environment and world around them.

Negative impacts
The biggest public health concern in transport is the effect of motorised road transport, stemming from the dominance of road transport within South Australia’s (and Australia’s) transport task. The vast majority of passenger kilometres and freight tonnes in this country are travelled or moved by road.

Table 2 reports varying health hazards and their importance according to mode of transport. Although developed in a New Zealand setting,1 these results are also pertinent for Australia.

Table 2: Types of health hazards related to transport and their relative importance at national level

<table>
<thead>
<tr>
<th>Transport mode</th>
<th>Crashes or ‘accidents’</th>
<th>Air pollution</th>
<th>Noise</th>
<th>Physical inactivity</th>
<th>Community disruption</th>
<th>Other environmental factors#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bicycle</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motorcycle</td>
<td>**</td>
<td>*</td>
<td>**</td>
<td>***</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Car</td>
<td>***</td>
<td>***</td>
<td>***</td>
<td>*</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>Bus</td>
<td>**</td>
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<td></td>
<td>*</td>
</tr>
<tr>
<td>Truck</td>
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<tr>
<td>Train</td>
<td>*</td>
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<td>*</td>
<td>*</td>
<td></td>
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<tr>
<td>Ferry</td>
<td>*</td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aeroplane</td>
<td>**</td>
<td>*</td>
<td>***</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

# Includes global climate change, water and soil quality, etc.
Source: Reference 1
Air pollution
It is now well recognised that there is a defined link between transport and air pollution. The quality of air we breathe affects the health of the community and directly influences the sustainability of our lifestyles and production methods. Table 3 provides a summary of transport emissions and their health impacts.

Table 3: Impact of transport emissions on air quality and health

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Health impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone (O₃)</td>
<td>Causes eye irritation, impaired lung function, reduced resistance to infections, and aggravation of asthma and bronchitis</td>
</tr>
<tr>
<td>Oxides of nitrogen (NOₓ)</td>
<td>Causes lung damage, increased susceptibility to respiratory infections and asthma; potentially fatal at high levels</td>
</tr>
<tr>
<td>Hydrocarbons</td>
<td>Small molecule hydrocarbons cause drowsiness and symptoms akin to hay fever; heavy-molecular compounds, including benzene, contribute to cancer and/or lung disease</td>
</tr>
<tr>
<td>Carbon monoxide (CO)</td>
<td>Interferes with absorption of oxygen by red blood cells; lethal at high doses; at low doses impairs concentration and neuro-behavioural function; promotes respiratory and circulatory problems; increases incidence of angina; may present risk to the foetus</td>
</tr>
<tr>
<td>Sulphur dioxide (SO₂)</td>
<td>Causes coughing; aggravates asthma, bronchitis and lung disease</td>
</tr>
<tr>
<td>Lead</td>
<td>Impacts blood circulation; causes neurological and kidney disorders; lowers the learning ability of children; accumulates in body tissues</td>
</tr>
<tr>
<td>Particulates</td>
<td>Contribute to respiratory diseases, lung cancer and infant mortality; can carry acidic and carcinogenic material into lungs</td>
</tr>
</tbody>
</table>

Sources: Reference 2, p.111; reference 3, pp.133–142

Greenhouse gas emissions
The phenomenon of global warming is the expected rise in global mean temperatures due to increased atmospheric concentrations of greenhouse gases resulting from human activity. The transport sector is one of the key sectors that emits significant amounts of greenhouse gases. There is major concern about the potential long-term and wide-ranging adverse impact that greenhouse gas emissions, and associated climate change, may have on the health of human and other species, in particular on food and water supplies.

Noise
Excessive ambient noise has a wide range of verifiable effects, including impacts on sleep and stress levels, and disturbance to activities such as communication and learning. Transport, in particular road traffic, is the main source of human exposure to ambient noise. Reported effects of traffic noise on people’s health are wide ranging, including:
- psychological effects—annoyance and behaviour reactions
- physiological effects—sleep disturbance, cardiovascular disorders such as high blood pressure and heart disease, hearing loss and general fatigue through sleep loss
- social effects—restrictions on people’s social activities, antisocial behaviour and effects on work efficiency.

Accident risks
Traffic accidents, particularly road traffic accidents, are a major cause of death and injury worldwide, creating a massive health burden for many countries. In South Australia in 2006 there were 104 fatal crashes and 6,086 injury crashes reported, with the total cost of road crashes in the state (fatalities, minor and serious injuries, and property damage accidents combined) estimated to be nearly $1 billion.

Personal risks in public
Fear for personal safety has become an important deterrent to the use of public transport, active modes of transport and public spaces. This is an important factor affecting, in particular, women’s decisions to use, or not use, the city and public space. Road rage is also a growing phenomenon which can influence public health.

Physical inactivity
Physical inactivity has increased in step with the dominance of the automobile. It contributes to a range of health problems, including rising rates of obesity and heart disease. In developed countries physical inactivity is the second most important risk factor for ill health after tobacco smoking. The health benefits of incorporating more active modes of transport into commuters’ daily lives have been well documented.

Social isolation / social exclusion
Transport increases public health through the accessibility it provides. However, some members of the community have poor levels of accessibility. High levels of road traffic and major transport infrastructure can divide communities, causing social isolation, limiting interpersonal support networks and discouraging social interaction. In some cases poor accessibility can contribute to the existence of social exclusion.
Land use and urban form

In the simplest of terms there appears to be a tendency for people to spend more time driving and less time walking when they live or work in places that primarily support vehicular travel. Designing future urban environments in a way that encourages more active transport such as walking and cycling will have a direct positive impact on the level of community health and wellbeing.

Box 1: Transport and health facts

- Urban air pollution reduces life expectancy more than any other environmental risk factor in the European region, where over 100,000 premature deaths per year are estimated to be attributable to air pollution.
- Noise related to transport has been shown to interfere with sleep patterns, concentration and children's performance at school.
- High levels of road traffic have been shown to be associated with social isolation and to limit social support networks, problems that are strongly associated with ill health.
- For short trips under 5 km, the car is the most frequently used mode of transport for 20–65% of trips.
- A total of 30 minutes of walking or cycling on most days of the week, even if carried out in 10- to 15-minute episodes, provides health benefits.

Source: Reference 14

Conclusions

The steady rise in transport activity, particularly road traffic and the use of the private car, in the second half of the 20th century has resulted in a range of adverse effects on human health and the health of the environment.

Societies have been relatively slow to understand, acknowledge and act on the adverse impacts of transport-related decisions. However, increasing evidence that transport impacts significantly on public health is now raising the importance of health as a policy driver.

It will be important to recognise that improving public health is a joint responsibility across all sectors of society: "The responsibility for maintaining or improving health lies not entirely with the established medical system and its complex range of knowledge, skills and techniques in surgery and pharmacopoeia, nor entirely with individual lifestyle. The structure and nature of society is a significant factor, as is quality of the environment – social, economic, political, legal and physical – in which people live." 15

In this broad context, societies have a range of options for reducing the adverse effects of transport on public health.

These include:
- integrated land use and transport planning, and appropriate urban design
- travel behaviour change
- ongoing improvement in vehicle performance from safety, emissions and noise perspectives
- greater use of cycling, walking and public transport.

References

Translating active living principles into action: Case studies from the Heart Foundation

Claire Gardner
Senior Project Officer, Active by Design
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Jenni Carr
Project Officer, Active by Design
Heart Foundation

Wendy Keech
Director, Cardiovascular Health
Heart Foundation

There has been increased community, media and government attention to the rising health burden attributed to escalating obesity and declining physical activity in the community, and to the projected escalation of this burden as the population ages. There is also an emerging body of evidence recognising the influential role that the built environment plays in determining whether people are physically active or not. 1, 2, 3

The Heart Foundation, as a key national, non-government health agency, is committed to advocating the creation and support of environments that allow for and encourage active living. ‘Active living’ is defined as a way of life that integrates physical activity into daily routines. Well-planned neighborhoods, towns and cities can increase the number of people who walk or cycle to schools, workplaces, shops, parks, services, facilities and public transport. While there are physical health benefits for residents who have access to environments that support active living, there are also economic, social and environmental benefits associated with these communities.

The Heart Foundation began working in this space in 1996 with the ‘Supportive Environments for Physical Activity’ (SEPA) Project. A fundamental learning from this project was that success was contingent on a whole of government approach, in which collaborative partnerships between all levels of government and other agencies were needed to transform public policy and influence urban planning practices. Sectors other than health that must be involved include planning, property development, local government, transport, parks and land management, education, safety (including crime prevention), and sport and recreation.

The challenges in this area continue to lie in translating the philosophy of active living into tangible outcomes and tools that can be effective at a community level, and engaging with sectors other than health.

The three case studies described below illustrate this translation of active living principles into practice.

Healthy by Design: A planners’ guide to environments for active living

‘Healthy by Design: a planners’ guide to environments for active living’, an initiative of the Victorian Division of the Heart Foundation, was developed in response to local government requests for practical guidance in designing walkable, and ultimately more liveable, communities.

The resource is based on recommendations from the Heart Foundation’s original SEPA project and other new research emerging primarily in Australia. It was created through community consultation research, specific work with local governments and property developers, and input from a range of professionals who have responsibility for the design of the urban environment.

Healthy by Design is constructed to support the essential role planners have in planning, designing and regulating environments that allow for and encourage healthier lifestyles. It draws together a variety of design considerations into one guide, including aspects that relate to walking and cycling routes, streets, local destinations, open space, public transport and the fostering of community spirit. The resource also contains case studies showcasing examples of projects that demonstrate healthy planning in practice.

The resource has been disseminated via training workshops throughout Australia. Currently a number of states and territories are considering developing their own versions of Healthy by Design, which would be able to reflect state variations in planning, health and local government legislation, while still promoting the underlying principles of active living.

Healthy by Design is available in hardcopy and on the Heart Foundation website:

http://www.heartfoundation.org.au/Professional_Information/Lifestyle_Risk/Physical_Activity/Supportive_Environments.htm
**A cross-sector approach to planning for health: Healthy spaces and places national planning guidelines**

The Healthy Spaces and Places National Planning Guidelines Project aims to improve health outcomes for Australians through better-designed built environments. The project will provide guidance to planning practitioners and related professions, working in state and local government and the private sector, on how to incorporate active living principles into the built environment.

**The collaboration**

The impetus to commence the project arose from a number of sources:

- The Heart Foundation has been working in the active living area for a number of years (see previous case study). Through this work it recognised the need for a national approach.
- The Planning Institute of Australia (PIA), as a result of its collaboration with the Victorian Department of Human Services on the Health and Well Being Project, recognised the need for the planning profession to have a national approach to building healthy communities. The PIA has adopted a national healthy communities position statement to promote an integrated approach, incorporating health outcomes at all levels of planning.
- The Australian Local Government Association (ALGA) recognises that good urban design can play a major role in allowing older Australians to age in place and remain active, both physically and in their local communities. A safe pedestrian environment, easy access to shopping centres, and recreational facilities are all important elements that can positively affect the ageing experience. Following the development of the ‘Ageing Toolbox’, ALGA is looking at opportunities to broaden their coverage to include planning for all ages.
- In 2005 the Commonwealth Department of Health and Ageing (DoHA) conducted the National Speaker Series ‘A Community for All Ages – Building the Future’, which recommended the development of national guidelines for planners to promote active living.

**The guidelines**

The Healthy Spaces and Places National Planning Guidelines will:

- take a national perspective, address strategic and practical applications, and include supporting case studies addressing different geographical scales, policy agendas and target groups
- have applicability to all levels of government and the planning and development industry
- incorporate an integrated, cross-sectoral approach, highly relevant to policy delivery at the state/territory and local levels.

**Progress to date**

The Healthy Spaces and Places project has:

- undertaken a comprehensive review of current research and policy settings
- conducted targeted consultation with a wide cross-section of organisations and individuals from a variety of sectors including government and non-government, professional planning/building associations, the development industry, academics and researchers, health, local government practitioners and special interest peak bodies
- gained feedback on the intended role and target audience for the guidelines, their scope, the essential content and the most appropriate format, as well as linkages with supportive related initiatives
- developed draft guidelines as the basis for more comprehensive consultation.

**Where to from here?**

The project partners are currently developing a comprehensive consultation strategy. It is envisaged that this will involve a series of workshops across the country as well as an opportunity for online feedback to the project via a dedicated project webpage.

The objective of the consultation is to further refine the draft document into a robust and practical resource with applicability to all levels of government and across a range of sectors.

**The process**

In response the Heart Foundation, PIA and ALGA recognised a partnership opportunity, and were successful in their joint funding proposal to DoHA to undertake initial scoping for the development of national planning guidelines. A Memorandum of Understanding was developed and a Steering Committee established of all four partners to oversee the direction of the project and development of the guidelines.
Tearing down the silos: A collaborative approach to active living in South Australia

The South Australian Active Living Coalition consists of government departments and other agencies whose core business includes improving the health and wellbeing of South Australians. The coalition aims to provide a collaborative forum for the planning and coordination of active living in South Australia.

Members of the Coalition are:
- Department of Health
- Office of Recreation and Sport
- Department for Transport Energy and Infrastructure (Office for Cycling and Walking and TravelSmart)
- Heart Foundation
- Planning Institute of Australia (SA Division)
- Cancer Council of South Australia.

The Coalition:
- provides advice and strategic direction on active living in South Australia
- contributes to the achievement of South Australia’s Strategic Plan targets:
  - T2.2 Healthy Weight: to increase the proportion of South Australians 18 and over with healthy weight by 10 percentage points by 2014
  - T2.3 Sport and Recreation: to exceed the Australian average for participation in sport and physical activity by 2014
  - T2.4 Healthy South Australians: to increase the healthy life expectancy of South Australians by 5% for males and 3% for females by 2014
- supports initiatives that contribute to the implementation of a number of strategies:
  - South Australian Physical Activity Strategy
  - Safety in Numbers, a Cycling Strategy for South Australia 2006–2010
  - Heart Foundation’s Healthy Weight Strategy
  - The National Cancer Prevention Policy – Physical Activity
  - Department of Health Eat Well be Active Healthy Weight Strategy.

Current Coalition projects include:
- an analysis of the South Australian Planning System to identify the issues and opportunities that impact on the adoption of active living in this state
- working with the property development industry to integrate active living principles into new residential developments and urban regeneration projects in South Australia.

For more information contact Jenni Carr, Heart Foundation (08) 8224 2822.

References


‘Housing for Health’ in Indigenous communities

Paul Pholeros
Director
Healthabitat

Background to ‘Housing for Health’ projects
The day-to-day living environment can have major impacts on people’s health. Our public health knowledge shows that when key parts of that living environment—such as water, washing facilities and efficient removal of waste—are not present or not working, health suffers. What started in the mid 1980s as a small public and environmental health review in Central Australia, has grown gradually into the Housing for Health project. It is now a national program that makes urgent safety and ‘health hardware’ repairs to existing housing and surrounding living areas to provide basic health benefits to the residents.

The Housing for Health projects, including the similar Commonwealth Government funded ‘Fixing Houses for Better Health’ projects, have a number of key concerns. These are:

- To make immediate change—to ensure that on day one of every project, ‘fix’ work commences.
- Using defined, standard and repeatable tests of a house and its components, to collect detailed, accurate data in order to ensure that small-scale immediate improvement goes hand-in-hand with careful documentation of longer-term needs and basic housing faults.
- To prioritise all work—to firstly deal with life-threatening safety issues, and then to maximise health gain using the nine Critical Healthy Living Practices:
  - washing people
  - washing clothes
  - removing waste safely
  - improving nutrition
  - reducing crowding
  - separating people from animals, vermin or insects
  - reducing dust
  - controlling temperature
  - reducing trauma.
- To employ local Indigenous people on every project, ensuring that some local people receive ‘on-the-tools’ training about how to test and do minor ‘fix’ work on their houses.
- To employ licensed tradespersons to carry out more extensive ‘fix’ work within 24 hours of the project’s commencement.
- To use the data generated by projects to expose building and product faults and to help define the principles essential for better design, specifications, construction and maintenance.

Data from the projects
As indicated above, data collection is a key component of the project. Figure 1 gives the most current national data for all Housing for Health and Fixing Houses for Better Health projects since 1999. It compares national average function rates for the Critical Healthy Living Practice (CHLP) criteria between Survey Fix 1 (SF1), before any fix work was commenced (5,085 houses in 136 projects) and Survey Fix 2 (SF2), after fix works were completed (3,860 houses in 116 projects) from 1999 to August 2007. The total fix budget was generally between $3,500 and $7,600 per house.

![Figure 1: Comparison of national average function rates, 1999 to August 2007](image-url)
Why are the results so poor at Survey Fix 1?

As can be seen in Figure 1, there is quite a difference in house function between the two surveys. When presented in Australia the results of the surveys are usually accepted, but when presented outside Australia the results are robustly questioned. Why are the results at Survey Fix 1 so poor? There are commonly expressed theories about why this is so, and these often stand in the way of both policy development and detailed design improvement. Information gained from the Housing for Health projects has been presented below (in italics) to test these ‘theories’.

1. Tenant damage:

While described in many ways, the most common explanation offered for the poor performance of houses is ‘tenant damage, or misuse or misunderstanding of how to use the house’. This frees policy makers, departments, designers and builders of much responsibility as it is assumed that whatever gets built will be damaged regardless of the house. History shows that over time the reasons behind this ‘damage’ vary—in more liberal times reasons of overcrowding or a lack of education as to how to use the house are recognised, whereas in more conservative times the residents are considered fundamentally ‘errant’ and in need of more restrictions, penalties or policing to make positive change possible.

Figure 2 shows that the prime cause of the need for fix work, as reported by licensed trades after completion of 91,819 items of work, is not willful damage or overuse or misuse, but rather routine maintenance. Since the earliest project work in 1985, the main change in these figures has been an increase in faulty work and a decrease in routine maintenance work, whereas damage remains near constant in the range 7–10%.

2. The age of the houses:

‘Much Indigenous housing stock is old and the figures simply reflect this fact’. ‘New housing will perform better than old’. This pushes the debate to an urgent need to provide new housing. Usually the need is for many more new houses, and with little increase in national Indigenous housing budgets, each new house will need to be built with a significantly reduced budget and lower specification levels. This leads to housing failure which impacts on health.

While much Indigenous housing is old, and the figures reflect this fact, there is no clear evidence that new housing is performing better than old housing. Figure 3 compares age and overall function for approximately 900 houses in widely scattered communities around Australia. Two versions of the same premise are tested—that newer houses should perform better than older houses, and that older houses should not perform as well as newer houses. Results showed that 16 out of 23 project sites do not confirm the original prediction—that as a house gets older its ability to function decreases.

Figure 2: National fix work data showing the reason the fix work was needed as recorded by licensed trades
Reducing the cost of new houses to enable budgets to build more houses and address the real problems of overcrowding will often reduce the money spent on key specification items, leading to loss of house function. Common ‘reductions’ are: little or no insulation, a smaller hot water system with high running costs, poor quality taps, reduced door and window quality, reduced number and quality of light fittings, less inspection of the works, and no yard works or fencing.

3. Poor design and construction:

‘Inappropriate design has not allowed people to interact with the house properly and the house has not provided for the needs of those using it. More and better-informed consultation at the design stage will improve the performance of housing. ‘Buildings are built badly and therefore fail. They need to be built of stronger materials and generally in a more robust fashion.’

Design and detailed specification do contribute to the performance of houses. Areas needing better design, careful specification and detailing include:

- wastewater systems able to cope with large numbers of people on a regular basis
- adequate hot water systems, considering water quality, running costs and house population
- bathroom layouts to accommodate large numbers of people often from several different family groups
- shower roses that continue to function in poor quality water
- light fittings and energy saving bulbs or tubes that provide adequate light to all parts of the house at a cost people can afford
- doors and hardware, particularly locks that ensure security and safe egress in the event of fire
- windows and new types of insect screening that ensure ventilation, security, reduction of harmful insects and safe egress in the event of fire
- cooktops and ovens that have a greater than 2-year life and that people can afford to use
- kitchen bench splashbacks that do not allow water to rot the bench material and encourage insects
- kitchen storage units that keep food cool, safe and free of insects and ants
- usable yard areas with cooking, sleeping and storage potential
- keeping most of the inside areas of a house at least as comfortable as the thermal performance equivalent of sitting outside the house under a tree, and for a cost people can afford to continue to pay.

Figure 4 provides a detailed breakdown of the general categories in Figure 2, as reported by licensed trades on both projects and representing 91,819 items of work. It shows that ‘making the house more robust’ is not the major issue, if the robustness is solely to counter vandalism (damage). However, robustness of the house’s fittings, hot water system and waste system to accommodate overcrowding and cope with aggressive water quality should definitely be considered.
Again in Figure 4 it is important to note the high level of routine maintenance faults that may well have been caused by poor initial construction. For example, drains with minimal falls are more likely to become blocked by heavy use. More disturbing is the fix work required due to plumbing and electrical work that was assessed by licensed trades as faulty because the particular item was installed incorrectly, the wrong part or component was fitted, or the essential item was absent from the house. This faulty 25% of all fix work represents 22,954 electrical and plumbing repairs.

Poor construction coupled with lack of supervision leads to houses that do not function. Consultation, design and specification will not produce better housing unless the decisions made during the design process are supervised and inspected on the building site.

4. Poor data:
‘The data does not properly reflect the condition of Indigenous housing. Housing is far better than this data would indicate. Other state and national data show the better performance of housing.’

There has been constant criticism of the project data, perhaps because they tell an unpalatable story—not only showing the results of house function but also representing the final product of the entire Indigenous housing delivery and maintenance system. Typical criticisms have been ‘…the questions are too hard and no house would pass!’ To test this statement it is useful to examine specific questions in detail. For example, ask yourself which items in the shower test below you would not want in your house when showering tomorrow morning.

The seven items that form the basis of the shower assessment for basic function are listed below:

1. Water in, hot water OK: there is water and adequate pressure coming from the hot water side of the shower.

2. Water in, cold water OK: there is water and adequate pressure coming from the cold water side of the shower.

3. Hot water temperature above 44°C OK: using a thermometer in the test kit the water measures greater than 44°C, which is generally considered the minimum useful hot water temperature delivered to the point of supply.

4. Taps, hot OK: the tap allows the hot water to be turned on and off.

5. Taps, cold OK: the tap allows the cold water to be turned on and off.

6. Shower rose OK: the rose allows the water to be directed to a person in the shower.

7. Shower drainage OK: the drain allows wastewater to drain from the shower area so the resident is not standing in a 50 mm pool of wastewater.

These are the most basic items deemed necessary to wash. The shower area may be in very poor condition, may be hard to keep clean and not a pleasant place to wash, but would still pass this function test.

‘The data are collected by Indigenous teams who are untrained’. A relatively new and disturbing reason for doubting and dismissing the data is by discrediting the local Indigenous staff who collect it. The local teams are given training firstly on demonstration boards (with the electrical and plumbing fittings that they are legally able to test), then in the field by trained team leaders. The data sheets are checked at various stages of the project to ensure accuracy. As the majority of the survey/fix teams come from the participating community, they quickly see that the marks they make on the survey form lead directly to a licensed tradesperson fixing the house; therefore, they have every reason for ensuring accuracy of the data.

Figure 4: Detailed breakdown by licensed trades of percentage of fix work needed by reason for fix
**Conclusion**

Fixing Houses for Better Health and Housing for Health projects continue to undertake the difficult task of making small but important improvements in the day-to-day living environment to improve the health of those people living in the house. The projects promise little and deliver slightly more. The housing data collected over 20 years continues to show that Indigenous Australians are not the problem; in fact, in the daily running of the projects, local people are a substantial part of the solution to improve housing.

**References**


**Gender, local governance and violence prevention: Making the links between international good practice and Australian policy**

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**What do spatial planning and governance have to do with violence prevention?**

The prevention of violence is a growing concern both internationally and within Australia. Readers of this journal may be familiar with the health promotion approach to violence prevention, but perhaps less familiar with an approach that emphasises spatial planning tools and techniques. Together with a commitment to good local governance, this approach pays attention to the right to safety, equally in both the private sphere of the home and the public sphere of streets and workplaces.

**Spatial planning** is a term associated with English planning theorist Patsy Healey, who describes it as:

‘efforts in the collective management of shared concerns about spatial and environmental qualities, expressed in explicit policies which emphasize a strategic orientation to coordination between diverse actions’.1

In other words, spatial planning goes far beyond an emphasis on traditional land use planning, zoning and urban design, to integrate social, economic, environmental and cultural policies that can accomplish particular societal aims in a coordinated fashion. Governance, or ‘the management of the common affairs of political communities’, goes beyond the formal institutions of government to incorporate all aspects of how people collectively govern themselves.2

**The GLOVE project: Integrating health promotion and spatial planning**

‘Gender, Local Governance and Violence Prevention: Making the Links’ (known as the GLOVE project), is funded by a 3-year Australian Research Council Linkage grant between the University of Melbourne and the Victorian Health Promotion Foundation. This project uses current international best practice on violence prevention to support four local government–community partnerships in Victoria—in the inner Melbourne suburb of Maribyrnong, the rural–suburban interface of Casey, the regional city of Bendigo and the rural shire of Loddon. Lessons from these four partnerships are intended to inform state and national policy on violence prevention.
Since the mid 1980s, there have been several developments in the international movement to prevent violence and promote community safety. A number of international organisations have decided that crime and violence prevention is a priority, and have supported both national and local interventions. The WHO initiated a ‘Safe Communities’ movement from the late 1980s onwards, which seeks to address the root causes of both unintentional injuries such as accidents and the intentional injuries of violence. In 1996 WHO declared violence to be a large and growing public health problem, which led to publication of the ground-breaking World Report on Violence and Health and establishment of the Global Campaign Against Violence. The World Bank co-funded the initial report on the burden of disease in 1996, which found violence to be a major public health problem, and has continued to fund innovative action research that promotes the prevention of violence as a poverty reduction tool. The United Nations (UN) supports national research and policy-making around the trafficking of drugs, guns and people through its Office on Drugs and Crime; and local governance initiatives on crime and violence prevention through its Commission on Human Settlements (better known as UN-Habitat), which has a Safer Cities Programme. A non-government organisation called the International Centre for the Prevention of Crime (ICPC) has provided research, training and other forms of support to local, national and international bodies using good practices in community safety and violence prevention.

What is good practice? Violence prevention, gender, partnerships and evaluation

Within these organisations, there is a growing consensus on a number of issues: the definition of violence as a problem; the importance of ‘gender mainstreaming’ within research and action on violence prevention; the importance of locally based partnerships as a basis of comprehensive strategies; and the development of better evaluation techniques allowing generalisations of what works, what doesn’t work and what is promising. In terms of the growing consensus on the problem to be addressed, WHO has developed a broad-ranging definition of violence. It includes self-directed violence and suicide; family violence, including child abuse, intimate partner violence and elder abuse; community violence including stranger and acquaintance assault; and collective violence such as wars and internal conflict. Caroline Moser and her colleagues, in their work for the World Bank, use a similar approach when defining the extent of violence in Latin America, with a greater emphasis on economic and institutional violence. The Commonwealth Secretariat uses a life-stage approach in its discussion of gender-based violence, moving from pre-natal violence against pregnant women; through child physical and sexual abuse, bullying at school, ‘date rape’ and intimate partner violence; to community violence in youth and adults; and elder abuse. Both UN-Habitat and the ICPC are shedding the emphasis on relatively minor property crimes and incivilities like vandalism and graffiti, in order to focus on poverty as a cause of violence in individuals and communities, and on violence prevention as a vital aspect of good governance.

All these international organisations have begun to include and implement ‘gender mainstreaming’ in their research and strategies on community safety. The UN defines gender mainstreaming as:

‘…the process of assessing the implications for women and men of any planned action, including legislation, policies, or programs, in any area and at all levels. It is a strategy for making women’s as well as men’s concerns and experiences an integral dimension in the design, implementation, monitoring, and evaluation of policies and programs in all political, economic, and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality.’

The understanding of gender differences needs to be incorporated in all aspects of violence prevention planning: from the definition of violence issues to be addressed to understanding differences in men’s and women’s experiences of violence and insecurity; and from developing partnerships to address violence to evaluating the impact of particular programs and policies.

There is a growing understanding, acknowledged by all these organisations, on what works to prevent crime, violence and insecurity. In my forthcoming book I have suggested a typology of the range of successful interventions that can be undertaken at the local level, including:

- early childhood interventions to prevent child abuse, usually aimed at parents
- school-based interventions, including developing norms of mutual respect and conflict resolution skills and also seeking to keep at-risk kids in school
- community economic development, aimed at offering resources to at-risk youth, and also to adults who require income support to escape violent situations
- public awareness, especially aimed at bringing ‘hidden violence’ into public discourse in streets and workplaces
- community mobilisation and capacity building
- service coordination
- planning initiatives, not based on protecting individuals or communities from ‘others’ but on creating spaces that are accessible to all members of the public
- policing and justice initiatives, aimed at increasing trust in the justice system, increasing reporting of ‘hidden’ violence through better response to violent incidents, and attaining more equitable and effective outcomes of criminal cases.
Finally, there is a growing consensus on what constitutes a good process of violence prevention. The process begins with the establishment of local-level partnerships between all levels of government, the private sector and civil society. These need to be supported by government with funding, training, recognition of and peer learning from good practices, assistance with evaluation, and a clear sense of state and national priorities. There needs to be local diagnosis of the prevalence and characteristics of the violence problem, identification of available resources, and establishment of priorities for action using measurable and realistic goals, each with a lead agency or government department. Implementation of the plan should be accompanied by regular monitoring of indicators, and eventual mainstreaming or integration of community safety into both government and agency policies and practices. Ideally, monitoring would be based on objective indicators—a triangulation of police statistics with agency/health service data and victimisation surveys—coupled with subjective indicators measuring changes in insecurity in homes and streets, and with increased reporting of violence and changing attitudes towards violence. Evaluation would also include social network analysis, or a set of process indicators measuring how well local partnerships are working.

The challenges

However, there still remains a ‘silo effect’ in most efforts to prevent violence, separating ‘crime prevention’ from ‘violence against women’. This is true at all levels of governance—neighbourhood, locality, state, nation, region and globe—and in both rich and poor nations. Family violence in the private sphere is treated as a separate phenomenon from community and collective violence in the public sphere, despite overwhelming evidence that the two are closely related in terms of causes and impacts. The WHO’s public health approach to preventing violence is very strong on diagnosis, evaluation and developing partnerships at the national level, but weak on spatial analysis and local governance partnerships. It is also poorly integrated with the ICPC and UN-Habitat’s spatial planning and governance approach to preventing violence, which is strong on local place management approaches but weak on evaluation. Both streams of community safety and violence prevention are still struggling with the issue of gender mainstreaming, tending to include ‘family violence’ as an add-on item to a laundry list of concerns, rather than an integral aspect of everyday violence in all societies. All aspects of crime and violence prevention struggle to obtain funding in the face of an overwhelmingly punitive approach which sees hundreds of billions of government dollars, in both rich and poor nations, spent annually on more policing and longer prison sentences, in the absence of any evidence that these approaches prevent further offending. The state of evaluation, particularly in the area of impact evaluation using victimisation surveys and agency screening for incidence of violence, is still in its nascent stages. The full extent of family violence, which includes elder abuse and child abuse as well as intimate partner violence, remains a largely ‘hidden’ phenomenon within public discourse. In terms of planning and governance approaches, there is still an emphasis on designing safer public spaces to prevent ‘one-off’ criminal acts, rather than providing spaces of refuge, healing and safety, or enabling processes that would allow hidden violence to enter the realm of public discourse. In order to address these challenges, researchers and advocates in both health promotion and planning need to work together and share ideas and projects that can further the development of good practices in violence prevention.

For more Information on the GLOVE project, visit our website: http://www.abp.unimelb.edu.au/research/fund/glove/

References

Imagination: The only antidote to design hazards in the built environment

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It is amazing that truth can transcend discipline. I recently discovered a perfect quote from Erwin Schrödinger, the physicist who developed quantum mechanics and was awarded the Nobel Prize in 1933. He said: ‘Think what nobody has yet thought, about that which everybody sees.’ On the strength of this beautiful insight, Erwin would be invited to come any time and work with my team in community safety, except that he is dead. Aside from that, he was very much with it—imagination really is the key.

Of course there is no shortage of excellent standards for building, construction and engineering. These standards help ensure compliance with accepted safe design. Unfortunately, though, standards are generic. There is no standard for a specific development. There may be a standard for a class of developments, and there are certainly standards for many of the components of a given development, but each situation is unique.

And what about at the physical interface, where the new development meets the old, tired infrastructure? What about at the social interface, where many different types of people will interact unpredictably with the new development? The community and the courts expect accountability for the way in which a new or modified development project impacts on the surrounding neighbourhood. It is abundantly clear from our records of thousands of injury events that doing everything right, but in a piecemeal way, can lead to a very wrong outcome.

A few years ago some of my team prepared a document to assist practitioners in applying the principles of risk management,1 as outlined in AS/NZS 4360:1999 Risk Management, Standards Australia,2 to decisions about design that are typically outside the scope of specific standards. In particular, the aims of the document were 1) to encourage early recognition and avoidance of potential hazards and 2) to facilitate the adoption of designs that are appropriate and defensible on more than just a single dimension. This article provides a watered-down taste of the larger document, which is a rather racier read.

How to avoid disaster by predicting the weird behaviour of other people

People interact with the built environment, but not necessarily in the way that the designer would prefer them to. Therein lies the challenge—imagining what can go wrong. The process is ongoing. Life will outsmart us in the end. No sooner has the perfect, risk-free carpark ramp been installed than some fool proposes skateboard slalom as the next new Olympic event. In safety there is no such thing as resting on your laurels.

‘Risks and the effectiveness of control measures need to be monitored to ensure [that] changing circumstances do not alter risk priorities. Few risks remain static.’

AS/NZS 4360:1999, p 20

For each distinct feature of a development it is necessary to list what its intended use is, as well as all the possible alternative, perverse, uses that could be dreamed up. Then the seven ways that a person can get hurt must be noted. Finally, there must be consideration of the need to ensure safety for people of all ages, sizes, abilities, motives, emotional states, levels of sobriety and degrees of attentiveness.

Admittedly, the task sounds complex. For each feature of a development, there are seven kinds of hazards to fear, seven dimensions of risk to cater for, multiple possible uses and at least two conditions of light (day and night). After considering all this, the designer moves on to the next feature of the development, and starts again.

‘… it is necessary to consider possible causes and scenarios. There are many ways an event can be initiated. It is important that no significant causes are omitted.’

AS/NZS 4360:1999, p 12

Fortunately, this approach, which may at first appear to be hopelessly involved and tedious, is surprisingly easy to master in practice. Once your imagination catches on to the rules of this game, you can sail through the process.

Traps

The main thing that distinguishes the real safety expert from the mere journeyman is the ability to foresee unusual coincidences and their risk implications. This skill is a variant of the ‘what if’ line of reasoning, whereby the safety expert asks ‘What would be the consequences for safety if A and B and C are all true at the same time?’

Recognising the risk in a combination of coincidences is an example of ‘higher order’ thinking in safety. An example of such thinking is recognising traps, i.e. non-coincidental combinations of features that decrease the perception of danger and therefore increase the risk. Where people fail to perceive danger they are less likely to
take appropriate precautions.

‘Perceptions of risk can vary due to difference in assumptions and concepts...’

AS/NZS 4360:1999, p 20

There are several common types of trap. The first is the so-called ‘pattern’ trap. This occurs where several safe versions of a repeated feature are suddenly followed by an unsafe version. An example would be a series of safety rails, all but one at the required height. Such traps may result from poorly monitored construction, i.e. failure to note a deviation from the agreed plan. This can occur either as an oversight or as an ‘adjustment’ to some competing local requirement. In either case the user of the environment could be lulled into a false sense of security for themselves or their children.

A second type of trap is called the ‘obscurity’ trap. This involves a clearly hazardous feature that does not come into view until it is too late. A pond in a park, hidden behind a sharp bend in a path, would be an example of such a trap. Parents walking on the path with young children might assume that it is safe to let the children run ahead a few paces. By the time the parents note the pond, the children could already be in danger.

A third type of trap is the ‘subtlety’ trap. This relates to a hazard (say a boat crane) that is outside the experience of most people. Such traps are often guarded only by a warning sign, where a physical barrier would be much more reliable. Signs are ineffective for people who can’t read, those who can’t read English or those who can’t decipher the meaning of the symbols.

A fourth type of trap is the ‘familiarity’ trap. This usually comes into play when a familiar environment has been changed in some way. Inadvertently over time, people may have been ‘trained’ to cope with a setting in a particular way. Because of the familiarity trap, people so trained could fail to perceive the new risks presented by the environmental changes that have been introduced.

The fifth, and final, trap is the ‘camouflage’ trap. This occurs where a designer makes an innovative feature appear like a standard feature. Users of the facility assume that they are taking proper precautions but, instead, they have misjudged the real risk. A young child in Adelaide drowned in a public swimming pool in part because the shallow section of the pool was joined to the deep section in an unusual way that was not immediately apparent to the supervising adults. An acceptably safe environment is one where design departures from the cultural norm are made immediately apparent to users. For any great new design concept, don’t be subtle in expressing it if safety is involved. Forget professional modesty. Bold is best. Leave camouflage to the military.

The twelve arguments against safety

It is important to be familiar with the common arguments against safety. Being familiar with the negative arguments, and with the corresponding counterarguments, helps you evaluate your own logic and the logic of others. Success in safety promotion depends on a positive attitude to prevention, and on good logic.

1. If no-one has been hurt yet, then no safety problem exists. Not true. Perhaps the hazard is relatively new. Perhaps few people have been exposed to the hazard. Perhaps those who have been exposed have just been lucky so far. A hazard can be evaluated by its physical characteristics per se—injured people are not required before something is defined as hazardous.

2. People who promote safety are being too emotional. Whether a promoter of safety chooses to be emotional or stoic is quite immaterial. Each hazard should be evaluated on its intrinsic characteristics, regardless of the personality or style of the people working to modify the hazard.

3. If you can not prove statistically that a particular safety solution will work, then you do not have grounds for promoting that solution. Statistical evaluation is always reassuring, but lack of statistics is not necessarily grounds for pessimism. Perhaps relevant data on which to base an assessment are unavailable or no-one has studied the issue formally. Even without formal evidence of past success, a particular safety solution can be considered on its apparent merits.

4. It is only natural that people will get hurt in the places where they spend the most time, or in the activities they most often engage in. While this is true, it is not to say that common hazards need to be accepted. Each hazard, common or rare, should be evaluated by comparing the cost of fixing it to the cost of doing nothing.

5. If people were more careful, it wouldn’t be necessary to worry about a safer environment. People did not evolve to be perfectly safe any more than they evolved to be perfectly intelligent, perfectly beautiful or perfectly healthy. We have to take people as they are—imperfect. Careful behaviour never fully compensates for a hazardous environment.

6. It is silly to address injury hazards that only account for a small proportion of the overall injury problem. Any single injury hazard, defined at the level necessary for specific intervention, accounts for only a small proportion of overall injury occurrence. In other words the ‘injury problem’ or, more specifically, the ‘built-environment injury problem’ is really an aggregate of many specific issues. In striving to address these issues by reducing hazards, the designer needs, by definition, to work on small pieces of the total pie.
7. It is no use promoting a safety program that’s not going to be 100% effective. Why should we consider programs only on the condition that they are perfect solutions? We don’t expect perfection in other areas of life. Do we reject our automobiles because they occasionally break down? Do we reject our schools because some students fail? Do we reject vaccines because some people still get sick?

8. Sometimes it is better to silence the people who are complaining than to worry about the complaint. In the old days, if one did not like the news, one shot the messenger. These are not the old days.

9. If we fix up one dangerous place in the environment, people could still get hurt in other places. True, but at least there will be one less dangerous place, and the fact that we have identified the danger gives that place priority over those where we have not.

10. There are so many hazardous situations in life, why bother to address any of them? If we fence swimming pools to protect small children, for example, then we will have to fence rivers, ponds, lakes, oceans etc. Clearly, fencing is absurd. Some hazards are more important causes of injury than others. Generally, we choose to invest resources where they will prevent the most injuries (or the most severe injuries). We can get a big benefit from our investment even if we have not reduced all the world’s hazards.

11. Reducing injury hazards is too expensive. Taking action to reduce injuries is often expensive, but it may be more expensive not to take action.

12. It is not fair that person X, who is responsible for managing a particular bit of our environment, has to find resources to reduce hazards on his patch. After all, if person Y comes along and gets hurt, the costs associated with the injury might not have to be borne directly by person X at all. Making person X pay for something that may not end up saving him money is unfair. Different societies have invented different mechanisms for spreading the cost of injury. In some societies the cost of being injured is borne entirely by the victim, while in others the cost is borne entirely by the party responsible for mismanaging the hazard. In still other societies, the government pays much of the cost. Prevention of injury is generally more difficult to promote when the cost of failure to prevent is not borne by the responsible party. Increasingly over time, legal systems have tended to shift the cost of failure onto those whose actions could have reduced the risk.

Examples of hazards in the built environment.

Photo 1: Neither driver nor pedestrian can see the other.

Photo 2: Open public access to this headwell and storm-water culvert presents a drowning hazard.

Conclusion

Some people say that we are what we eat. My team and I say that we are where we hang out—in the built environment. Just as food directly affects our health, so too does the built environment, every day and in every way. If the built environment is designed and monitored carefully to meet our varied needs, our health will be enhanced. If, however, a too narrow design view prevails, or if we fail to monitor the environment with appropriate vigour, it is likely that we will be exposed to a variety of agents that are definitely not health promoting.

Copies of the document on which this paper is based are available for purchase from anne.bowden@health.sa.gov.au

References


Pam Moore talking about community engagement and planning decisions

Pam is a local community advocate and long-time resident in the north-western suburbs of Adelaide. She has had a long-term involvement in the consumer health movement in South Australia. Pam was a member of the North-West Suburbs Health and Social Welfare Council; was a joint founder of both Health Rights and Community Action and the Health Consumers Alliance; and has been a member and consumer representative on the South Australian Hospital Safety and Quality Committee.

In addition to her active involvement in consumer health issues, Pam also became active in moves to protect her local neighbourhood from what she and a number of other residents considered to be inappropriate development. Pam's street is in a designated historic conservation area of her local community and has a range of additional planning conditions and guidelines designed to ensure sensitive and consistent development.

A proposed new housing development in her area consisted of subdividing a nearby neighbourhood property and redeveloping it into multi-storey residential accommodation which many residents thought was out of context for the area. Pam and others formed a community action group to lobby against the proposal.

The group, Love Your Backyard Inc, engaged in a range of community education activities including public meetings, local barbecues, letterboxing and making representations to local members of parliament and the local council. Efforts were also made to negotiate and engage with the developers.

On various occasions members of the group were threatened with civil action. Pam also reports that members were not always able to access accurate advice or information about the process of development applications or the provisions of the Development Act 1983 as it applied to their situation. This led to some tension between the group and the local council. Pam undertook a series of applications under the Freedom of Information Act 1991 (FOI) to access information, and was successful in identifying documents which appeared to show that the development was not conforming with the guidelines.

The group realised that it was in a complex situation and took action to consolidate its position. This included incorporating as a formal organisation and seeking legal advice to assist them in understanding planning legislation and decision-making processes concerning development applications. The group also developed a website http://www.loveyourbackyard.com to keep members and the general public informed of any developments, updates or events. Documents discovered under FOI as well as relevant correspondence and subsequent judgments were also posted on the site.

Love Your Backyard Inc continued its activities in raising community awareness, and airing its concerns with council staff and elected members, as well as with members of parliament. Matters finally came to a head in early 2007 when a Development Assessment Panel report was considered by the council. After deliberations the council refused the development application on the basis that it was nonconforming with the guidelines for development in a historic conservation area. This decision was the subject of an appeal by the developer to the Environment, Resources and Development Court of South Australia. The court, however, upheld the council’s decision. At each stage of this formal process Pam and the group remained engaged, watchful and vigilant of the steps taken and decisions made, including attendance at council meetings and at court.

Love Your Backyard Inc remains an active group that has now established a presence in its community, has informed itself of planning processes and planning law, and is applying its skills and experience to helping others in similar situations. It remains a strong voice for the maintenance and development of healthy liveable communities.

Reflecting on her experiences, Pam has been able to identify a series of ‘tips’ or insights into what helped her and the group navigate this difficult, complex and at times intimidating process. These include:

- If people tell you that there's nothing you can do about something, don't believe them. There's always something you can do.
- People in official positions don't always have a complete understanding of the law or procedures they are meant to administer. They also may not have a complete understanding of the relevant facts. They can be questioned and informed.
- Know your facts. Be prepared to read and understand relevant documents and legislation. If you don't understand, ask someone who does.
- Know your rights (e.g. rights of access to documents and appeal rights under FOI legislation).
- People acting together can make a difference.
- Get organised. Make sure your group is structured and develops clear lines of communication and decision making.
- Don't forget your passion—in this case a belief in a liveable neighbourhood, and a determination not to allow poor planning decisions to wreck people's wellbeing.
- Persist! Keep thinking of new ways of getting your point across.
Influenza in South Australia in 2007

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Abstract
The 2007 influenza epidemic has resulted in the largest number of laboratory-confirmed cases of influenza in South Australia since 2001, when records were first kept. The high numbers of cases of seasonal influenza in South Australia were part of an Australia-wide increase. Of considerable media interest were a small number of sudden deaths in otherwise healthy children under the age of 5 years, as well as a large number of influenza cases and localised outbreaks among residents in aged care facilities and among students on school trips within Australia. There was a significant increase in enquiries from health professionals and the public in relation to influenza vaccination for children, and new recommendations regarding the dose of vaccine for younger children were released during the influenza season. The important lessons learned were the need to strengthen promotion of influenza vaccination for the general public and especially for healthcare workers, and to review the public health indications for the use of antiviral medications for both treatment and prophylaxis of influenza infection. These lessons provide an opportunity to review South Australia’s pandemic influenza response plan.

Introduction
Influenza is an infection of the nose, throat and lungs caused by the influenza virus. The virus is spread from person to person primarily through large-particle respiratory droplet transmission. This requires close contact between the source and recipient because droplets do not remain suspended in the air and generally travel only a short distance (≤1 metre) through the air. Another important route of transmission is by contact with surfaces contaminated by infectious respiratory droplets.

Attack rates in the community are between 5–10%, but within households and closed populations the rate is two to three times higher. Influenza can be a serious, and sometimes fatal, illness, particularly in people over 65 years of age or those of any age with a chronic illness. Annual epidemics of influenza infection can develop rapidly, with widespread morbidity and serious complications. Emergence of new types of influenza virus can cause pandemics, potentially creating global health emergencies.

Influenza in South Australia in 2007
This year South Australia has experienced the largest number of cases of influenza infection since 2001, when records were first kept of laboratory-confirmed cases. Figure 1 shows the epidemic curve from 2001 to 2007 for such cases, demonstrating both the seasonal nature of influenza infection and the increase in 2007. There are many conditions that present with an influenza-like illness (ILI), and most are managed on clinical grounds without laboratory confirmation of the diagnosis. Most of the laboratory-confirmed cases are diagnosed in young children under 5 years of age who present to hospitals with respiratory symptoms. In contrast, general practitioner sentinel surveillance detects more cases of ILI in adults aged 20–49 years, although the case definition for an ILI will include cases that are not influenza. In South Australia influenza data are incomplete as it is not yet a notifiable disease.
Immunisation for influenza

Immunisation is the most effective public health response to seasonal influenza. Influenza vaccines have been available for many years but, because the virus is constantly changing, the vaccines are altered each year to provide protection against the anticipated circulating strains. Annual vaccination is therefore required, and is about 70–90% effective in healthy persons less than 65 years of age when the vaccine antigen closely matches the circulating strains of virus. Among the elderly living outside nursing homes or similar chronic-care facilities, the vaccine is 30–70% effective in preventing all hospitalisation for pneumonia and influenza. For those in nursing homes, the vaccine can be 50–60% effective in preventing hospitalisation or pneumonia and 80% effective in preventing death.6

Current influenza immunisation rates among the general population in South Australia are not known. However, a population health study of 3,000 adults aged 18 years and over in South Australia in 2001 found an overall influenza vaccination rate of 27.7%. For those aged 18–64 years the rate was 15.7%, while for those aged 65 years and over, the rate was 79.8%.7 The 2004 Adult Vaccination Survey conducted nationwide by the Australian Institute of Health and Welfare found an estimated coverage for influenza vaccination of 79.1% among all Australians aged 65 years or older (81.3% among South Australians). This study also included a sample of Australians aged 18–64 years where the national coverage was estimated to be 18.8% (18.5% in South Australia).8

Treatment and prophylaxis

Effective treatment and prophylaxis with antiviral medications are available for influenza infection, but these approaches should be seen as complementary to immunisation as the primary method for influenza control.

When administered within 2 days of illness onset to otherwise healthy children or adults, oseltamivir or zanamivir can reduce the duration of uncomplicated influenza A and B illnesses by approximately 1 day compared with placebo.1 A systematic review of the use of antivirals for influenza in healthy adults found that
zanamivir or oseltamivir can shorten the duration of illness by 1–3 days and reduce viral shedding by 40–70%, fever by 0.5–2 days and complications by 60–70%.

In community studies of healthy adults, both oseltamivir and zanamivir had similar efficacy in preventing febrile, laboratory-confirmed influenza illness (oseltamivir 82%, zanamivir 84%), with similar rates for household contact with a diagnosed influenza case. Chemoprophylaxis in institutional settings has also been shown to be effective, with one 6-week study of oseltamivir treatment among nursing home residents demonstrating a 92% reduction in influenza illness. The Communicable Disease Network Australia has published guidelines for the management of influenza outbreaks in residential care facilities, including recommendations in relation to prophylaxis with antiviral medications.

Lessons learned
One of the most important lessons to emerge from the 2007 influenza season in South Australia was the need to strengthen approaches to promote immunisation as the primary and most effective method to mitigate the impact of influenza. The Immunisation Section of the Communicable Disease Control Branch (CDCB) received 923 phone calls regarding influenza between 1 July 2007 and 31 August 2007, averaging 21 calls per day and with a maximum of 126 on the busiest day. Most enquiries related to influenza immunisation, especially for children. In response to the severe influenza season, the Commonwealth released the 9th edition of the Australian Immunisation Handbook section on influenza ahead of schedule. This section contained new recommendations in relation to the dose for young children (the dose for children aged 6 months to 2 years was increased from 0.125 mL to 0.25 mL). The combination of increased demand for immunisation and change in dose for young children generated a degree of confusion among the public and health providers, and the Department of Health issued two Public Health Alerts to provide accurate information on these changes.

Another important lesson to learn from this season is the need to more aggressively promote influenza immunisation among healthcare workers. CDCB received a number of phone calls from individual health staff and agencies for advice on post-exposure prophylaxis for unimmunised healthcare workers exposed to cases of influenza infection. Most of the South Australian health services contacted had policies and practices in place in relation to influenza immunisation, but not necessarily to the use of antiviral therapy for post-exposure prophylaxis among healthcare workers—such policies and practices need to be developed.

Conclusion
The moderate to severe influenza epidemic in South Australia in 2007 has provided an opportunity to review current influenza control measures, in particular the promotion of immunisation among the public and especially among healthcare workers. Recent studies have provided evidence of the effectiveness of antiviral medication in the treatment and prophylaxis of influenza infection, but these measures should be seen as complementary to immunisation as the primary public health response. The public and media interest, particularly in relation to the sudden deaths of young children, has highlighted the need for an improved understanding of the epidemiology of the disease, and the need for influenza to be added to the list of notifiable diseases in South Australia. This epidemic has provided an opportunity to review South Australia’s pandemic influenza response plan.

References
Hand and Respiratory Hygiene Project: Wash, Wipe, Cover – Don’t infect another!

As South Australia continues to experience one of the worst influenza outbreaks for the last 7 years, the South Australian Department of Health, through the Infection Control Service and the Safety and Quality Unit, has a new initiative underway that will provide educational resources to promote good hand and respiratory hygiene.

Hand hygiene has been recognised worldwide as one of the most effective practices to reduce infection transmission. In particular the WHO, in acknowledging the importance of consistent hand hygiene practice among healthcare workers, has issued the WHO Guidelines on Hand Hygiene in Health Care. The ongoing threat of pandemic influenza, and the work that needs to be done in informing the South Australian public and providing them with the skills to slow the spread of such a virus, has highlighted the need for hand and respiratory hygiene awareness for all members of the community.

The South Australian Government has further recognised the opportunity to expand this strategic approach to address many other respiratory and gastrointestinal illnesses in both the community and for healthcare workers.

Every year respiratory illness (including influenza) and gastroenteritis create significant disruption to both the workplace and the community. Much of this could be avoided by the simple practice of better hand and respiratory hygiene. Within the home, school and workplace, washing hands thoroughly and regularly with soap and water will help reduce the transmission of micro-organisms picked up through contact with contaminated surfaces. In the healthcare environment the application of alcohol hand rubs between patient contacts is advised as an added or alternative practice.

In addition to hand washing, it is important to cover coughs or sneezes with a tissue or, if this is not possible, the upper arm. These methods avoid contamination of the hands and subsequent contamination of frequently touched surfaces. Used tissues should be discarded immediately and hands washed after use.

A third and important strategy to break the transmission cycle is the wiping down of contaminated surfaces. This is particularly important around the home, office and food preparation areas.

The ‘Wash, Wipe, Cover – Don’t infect another!’ Hand and Respiratory Hygiene Resource Development Project is working with key stakeholders to develop appropriate content for an educational resource kit to deliver these messages to the South Australian community. A suite of practical educational and awareness tools promoting better hand and respiratory hygiene practice will be developed and made available to communication representatives of key public and private organisations for distribution to their staff, customers, patients and family members.

‘Wash, Wipe, Cover – Don’t infect another!’ will be provided as a CD of downloadable promotional tools including:

- fact and Q&A sheets
- posters for the general public and healthcare workers
- banner advertisement templates for electronic use and in newsletters
- brochures
- restroom stickers / back-of-door signs
- email signatures.

The overall aim of the resource kit is to encourage community habits that will have a positive impact on the prevalence of gastrointestinal and respiratory illness within South Australia.

If you would like any further information on ‘Wash, Wipe, Cover – Don’t infect another!’ or would like to receive a resource kit for your workplace, please contact either Neil Charter neil.charter@health.sa.gov.au or Christine Hunt christine.hunt@health.sa.gov.au

Reference
1 April to 30 June 2007

**Summary**
In the second quarter of 2007, the diseases most commonly notified to the Communicable Disease Control Branch (CDCB) of the South Australian Department of Health were Campylobacter infection (40% of all notified infections) and the varicella infections, chicken pox and shingles (19%).

**VECTORBORNE DISEASE**

In South Australia, two arboviruses commonly cause disease, Ross River and Barmah Forest viruses. Both are spread by mosquito vectors and cause cyclic patterns of disease, peaking in summer months.

Arboviruses cause disease ranging in severity from very mild to disabling. Common symptoms include arthralgia, rash, flu-like symptoms and swollen lymph glands. Severe complications occur rarely. Blood tests confirm the diagnosis of arboviral infection, frequently by demonstration of specific IgM antibodies in acute-phase sera.

**Barmah Forest virus infection**
In the second quarter of 2007, 14 cases of Barmah Forest virus infection were reported compared to 46 in the corresponding quarter of 2006. Cases comprised three males and 11 females, with an age range of 19–74 years; mean 36 years. Half the cases reported their geographical residence as regional South Australia.

Figure 1 illustrates a large number of cases of Barmah Forest virus infection early in 2006, followed by a gradual decline during the remainder of the year; March 2007 recorded the highest increase for 2007.

![Figure 1: Notified cases of Barmah Forest virus infection, by month of onset 1 January 2001 to 30 June 2007](image-url)
Ross River virus infection
Between April and June 2007 inclusive, 58 cases of Ross River virus infection were reported (19 males, 39 females, age range: 14–78 years, mean 39 years), compared to 36 for the same period in 2006. While these 2007 data are low compared to the number of cases reported in epidemics, they are approximately double the background level of Ross River virus infections normally reported in inter-epidemic periods. The summer of 2005–06 recorded the biggest outbreak of Ross River virus infection in South Australia since the summer of 2000–01 (Figure 2).

Ross River virus activity in South Australia can be viewed on our web site: www.health.sa.gov.au/peh, as well as information about prevention of vector borne diseases and the Fight the Bite campaign.

Dengue fever
Three cases of dengue fever were reported in this quarter; in two males and one female; age range 32–64 years. All reported recent overseas travel to Indonesia.

Malaria
Ten cases of malaria were reported in the second quarter of 2007, compared to three in the first quarter. Cases comprised four males and six females, with ages ranging from 2 to 56 years. All infections were acquired overseas.

Eight cases with Plasmodium falciparum infections reported exposure in Africa. Two cases of Plasmodium vivax infection reported recent travel to Papua New Guinea.

ZOONOSES

Hydatid Disease
Hydatid disease, caused by the larvae of the tapeworm, Echinococcus granulosus, is rare in South Australia. A result of infestation is hydatid cysts, which usually appear in the liver or lungs, but can also occur in other viscera, bone and nervous tissue; cysts in vital organs can cause severe symptoms. Over the last seven years, an average of five cases per year has been recorded.

Four cases were reported between April and June 2007 compared to one in the first quarter of 2007. Cases
comprised two males, aged 11 and 74 years, and two females aged 42 and 69 year. Two cases had migrated to Australia: one from Africa and one from Southern Europe.

**Ornithosis**
One case of Ornithosis due to *Chlamydia psittaci* infection was reported in a 57 year-old male from rural South Australia with exposure to birds.

**Q fever**
Q fever is a zoonotic infection caused by *Coxiella burnetti*, and cases typically have occupational exposure to animals. Sheep, cattle, goats, cats, dogs and kangaroos are natural reservoirs for the infection. Infected animals are usually asymptomatic but can shed vast numbers of the infective organism in the placental tissues during birthing.

Eleven cases of Q fever were reported in this period, compared to five cases in the corresponding period of 2006. Among the cases reported between April to June, five had occupational risks for acquiring Q fever, and four cases formed a small community cluster of infections whose risk factor was residence in close proximity to an abattoir.

Cases comprised nine males and two females with an age range of 7 to 78 years. The youngest case, a female was part of the community cases, as were the males over 70 years of age.

**VACCINE PREVENTABLE DISEASES**

**Invasive Haemophilus influenzae**
Two cases of invasive *Haemophilus influenzae* infection were notified between April and June 2007. In both cases, the organism grew from blood culture and the isolates were unencapsulated strains (untypeable). The cases were adult females aged 93 and 94 years; one had a known history of respiratory disease.

No *Haemophilus influenzae* type b cases were reported in the period.

**Invasive meningococcal disease**
Three cases of meningococcal disease were reported in the second quarter of 2007 compared to one in the first quarter. The cases were all female infants, less than 14 months of age. Further typing showed the infections were all caused by *Neisseria meningitidis* serogroup B.

**Invasive pneumococcal disease**
Among the 33 cases of pneumococcal disease reported during this period were 16 males and 17 females, with an age range from <1–96 years. Three cases were reported in Indigenous Australians. Nearly all (32/33) cases were hospitalised and two reported deaths were attributed to the disease. The cases who died were over 85 years old.

**Measles**
No cases of measles were reported between 1 April and 30 June 2007.

**Mumps**
Five unrelated cases of mumps were notified during this period, compared to two cases in the first quarter. The cases included three males and two females with an age range of 23–65 years. In two cases the vaccination status was unknown. The other three cases were reported as unvaccinated.

**Pertussis**
*Bordatella pertussis* infection demonstrates variation in time, often with an increase in disease in spring. Some of the increase in pertussis cases during 2005 and 2006 is now thought to reflect changes in laboratory testing; and some reported cases may reflect past, rather than current infection (Figure 3).

Ninety-seven cases of pertussis were notified during the second quarter of 2007, compared to 445 for the same period in 2006. Cases comprised 40 males and 57 females with an age range of 4 to 82 years; mean age 47 years. Most cases were more than 18 years of age (95%), and only 7 cases were less than 20 years old at diagnosis. Cases were geographically dispersed throughout South Australia.
Rubella
One case of rubella was reported in the second quarter of 2007 in a 35-year-old female.

Influenza
The Disease Surveillance and Investigation Section of CDCB collates sets of information from both laboratory and clinical sources to describe influenza in South Australia. Several laboratories report positive tests to CDCB (Institute of Medical and Veterinary Science, SouthPath, Women's and Children's Hospital). Clinical diagnoses of ‘influenza-like illness’ are collected from two sources: Royal College of General Practitioner members participating in the Australian Sentinel Practice Research Network (ASPREN), and emergency departments of several public hospitals. These combined data provide a weekly picture of confirmed influenza infections and influenza-like illness activity across South Australia.

In the second quarter of 2007, eight laboratory isolates of influenza A (one male, seven females; age range 2–92 years) were reported, as well as two influenza B isolates (one male, one female; aged 38 and 62 years). This is comparable to the eight reported influenza isolates for the second quarter of 2006. Figure 4 illustrates combined laboratory confirmed cases and clinical diagnosis per week during 2006 and the first half of 2007.

Information about influenza and respiratory diseases is available on our web site: www.health.sa.gov.au/pehs/.

Varicella
Among 395 confirmed cases of varicella infection reported during the second quarter of 2007, were 176 males and 221 females whose ages ranged from <1–95 years.

Medical notification characterised 153 infections as chicken pox, these cases had an average age of 11 years; range <1–80 years, and 90% of cases were less than 28 years of age. A further 168 cases were characterised as zoster (shingles); the average age of these cases was 53 years, ranging from 3–95 years; 75% were over 37 years of age.

GASTROINTESTINAL DISEASES
Gastrointestinal illnesses dominated disease notification in South Australia early in 2007 when reported cases greatly exceeded the expected seasonal increase. A decrease in cases was observed during the second quarter.

Campylobacteriosis
Campylobacter infection remains the most commonly reported gastrointestinal disease in South Australia and accounted for 40% of notifiable disease in this quarter.

In the period under review, 669 notifications were received for cases resident in South Australia, compared to 926 cases during the first quarter of 2007. Cases comprised 372 males and 297 females, with an age range of <1–92 years. No clusters of infection were detected in the period.
Cryptosporidiosis
Cryptosporidiosis is a parasitic infection of the bowel. The parasites are found in humans as well as a range of wild and domesticated animals. The mode of transmission is oral – faecal and cryptosporidia readily transmitted by drinking or swimming in contaminated water.

In the second quarter of 2007, 104 cases of cryptosporidiosis were reported, continuing the higher than expected number of notifications recorded during the first quarter (Figure 5). In the same corresponding period quarter of 2006, 77 cases were reported. Of the cases notified between April to June 2007, there were 44 males and 60 females, with an age range of <1–74 years; mean 19 years. Most cases were less then 25 years of age (60%).

Figure 4: Influenza-like illness in South Australia; clinical and laboratory diagnoses per week for the period 1 January 2006 to 30 June 2007

Figure 5: Notified cases of Cryptosporidium infection, by month of onset 1 January 2007 to 30 June 2007
Figure 6 demonstrates the distinctive age and sex structure of cases notified in 2007; predominately males less than 15 years of age, and females aged 25 to 45.

Cases of cryptosporidiosis with reported risks potentially requiring public health action were referred to local government Environmental Health Officers, as well as the Water Quality Section of the Department of Health Environmental Health Service.

**Hepatitis A**

Hepatitis A infection is caused by a virus and is unusual in South Australia. The illness ranges from asymptomatic (particularly in children) to rare fulminant hepatitis. Common symptoms include fever, anorexia, abdominal discomfort and jaundice. The incubation period is 15–50 days. In endemic areas of the world, transmission is usually by the faecal-oral route. However, common source outbreaks due to contaminated food or water have been reported in Australia.

One case of hepatitis A infection was reported during this period in a 26 year-old unvaccinated female with recent overseas travel to countries where hepatitis A infection is endemic.

**Listeriosis**

No cases of listeriosis were reported in the period.

**Shigellosis**

Twelve cases of shigellosis were reported in the second quarter of 2007; four males, eight females, age range 2–86 years; six cases were reported as Indigenous South Australians. Three cases were due to *Shigella sonnei* infections, seven were caused by *Shigella flexneri*. *Shigella boydii* infections accounted for two cases.

Two *S. sonnei* biotype a infections were recorded and one *S. sonnei* biotype g. Of seven *S. flexneri* cases, three were caused by *S. flexneri* type 2a and four were due to *S. flexneri* type 4a; the latter cases were all Indigenous.

**Shiga toxin producing *Escherichia coli* (STEC)**

Enterohaemorrhagic *Escherichia coli* (EHEC) bacterial strains include shiga-toxin producing *E. coli* (STEC), which can cause bloody diarrhoea. A small proportion of cases progress to shiga toxin-mediated haemolytic uraemic syndrome (HUS). This syndrome can cause severe, chronic disease. Laboratory screening of bloody diarrhoea specimens for genes encoding the toxins enhances prompt notification of STEC infections in South Australia.

In the second quarter of 2007, eight cases of infection with shiga-toxin producing *Escherichia coli* (STEC) were notified to the CDCB; compared to nine cases in the same period of 2006. The age range of cases (four males, four females) was 1–87 years. No clusters of infection were detected.

**Haemolytic Uraemic Syndrome (HUS)**

No cases of Haemolytic Uraemic Syndrome (HUS) were reported in the period.

**Salmonellosis**

Salmonella infection is usually the second most common notifiable gastrointestinal illness reported in South Australia. Between April and June 2007 inclusive, 214 cases of salmonellosis were reported. This figure represents a decrease from the unusually high number of 331 cases reported in the first quarter of the year, as illustrated in Figure 7. Cases comprised 93 males and 121 females.
females, with an age range 0–95 years. Laboratory tests characterise *Salmonella* isolates by serotype and phage type.

*Salmonella* Enteritidis is rarely detected in Australia. Three cases of *Salmonella* Enteritidis infection however were reported in the period; two reported recent overseas travel.

Clusters of infection of various *Salmonella* serotypes reported and investigated in the second quarter of 2007 included: *S. Bovismorbificans* (eight cases), *S. Virchow* (seven cases) and *S. Heidelberg* (two cases).

Among 134 cases attributed to infections by *S. Typhimurium*, that were further classified by phage type and investigated were: 32 cases of *S. Typhimurium* phage type 9 infection, 36 cases of *S. Typhimurium* phage type 29 infection, seven cases of *S. Typhimurium* phage type 135a infection and three cases of *Salmonella* Havana.

**Salmonella Typhimurium phage type 9**

Community cases of *S. Typhimurium* phage type 9 were included in an ongoing outbreak investigation from the previous three months: cases were clustered geographically around metropolitan Adelaide with a few cases in rural areas of the state. Cases were interviewed, however, there was insufficient evidence to establish plausible hypotheses for the majority of cases.

In May a cluster of eight *Salmonella* Typhimurium phage type 9 cases linked to a child care centre was investigated. Cases included both children and a staff member. At the centre there was an aquarium housing a turtle. Tests on food, swabs of the kitchen area, turtle food, the turtle itself and the aquarium water did not detect *Salmonella*. Transmission of the infection was suspected to be person to person.

**Salmonella Typhimurium phage type 29**

During April to June an ongoing investigation from the first quarter of the year was continued into cases of *Salmonella* Typhimurium phage type 29. Thirty six cases were reported (compared with 25 in the January to March quarter) with the majority residing in metropolitan Adelaide. Most were reported in May. These cases were investigated however a source for the infection was not identified.

**Salmonella Havana**

Three cases of this infection were reported during the second quarter. One case was found to be a sporadic infection and the other two cases were linked to an aged care facility. Investigation of the latter two cases found that one was a symptomatic resident while the other resident was asymptomatic, but tested positive during the investigation. An investigation of the aged care facility kitchen found that the eggs supplied to the facility were cracked and dirty. The eggs were sent to the IMVS food laboratory for testing, but *Salmonella* was not detected on the eggs and no further cases of illness were notified.
Salmonella Typhimurium phage type 29, 44 and 9
Ongoing investigations into clusters of Salmonella Typhimurium phage types 9, 29 and 44, during April to June, elicited four cases who had all eaten within at the same chain of cafés: three at one location and one case at another. All cases reported eating the same type of chicken roll within a four day period.

An inspection of the bakery which supplied food items to the café chain was undertaken and was satisfactory. In particular all environmental swabs and eggs samples were negative for Salmonella.

Salmonella Typhimurium Phage type 135a
In the second quarter of 2007, seven cases of Salmonella Typhimurium phage type 135a were notified compared with 17 in the first quarter. Four of the cases were males and the remaining three were female, the age range 3–55. Cases lived both in metropolitan Adelaide and rural South Australia. Hypothesis-generating interviews did not establish any links between common foods consumed and no plausible hypothesis was established.

Salmonella Paratyphi
One case of paratyphoid fever was notified during the second quarter of 2007 in a 28 year-old female. The source of the infection was not determined.

Salmonella Typhi
Typhoid fever is transmitted by consumption of food or water contaminated with Salmonella Typhi. Most infections of S. Typhi detected in South Australia are acquired overseas and untreated infections have significant mortality. Unlike other Salmonella infections, up to 10% of those infected can become asymptomatic carriers of the infection.

One case of S. Typhi infection was notified in the current period in a 25 year-old male who had recently returned from an overseas country where the infection is endemic.

Yersiniosis
One case of Yersinsia enterocolitica infection was notified in a 16 month-old female from metropolitan Adelaide.

OTHER DISEASES

Legionellosis
No cases of L. pneumophila infection were reported in this quarter.

Two sporadic cases of legionellosis due to L. longbeachae infection were reported during this period comprising one male and one female aged 66 and 50 years respectively. In one case the infection was found to be consistent with exposure to potting mix.

Creutzfeldt-Jakob disease
Creutzfeldt-Jakob disease is a prion disease which affects the brain; it has two forms, classical and variant. Disease progression and clinical signs of each form are distinctive, and both are fatal. The diagnosis is confirmed after the death of the case.

One case of classical Creutzfeldt-Jakob disease was reported in a 77 year-old female from metropolitan Adelaide who died during the second quarter.

Leprosy
During the second quarter, one case of leprosy was reported in a 83 year-old female from metropolitan Adelaide. The case had probably acquired the infection overseas, before migrating to Australia.

These data are provisional and subject to further revision.
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The Public Health Bulletin South Australia is a publication of the South Australian Department of Health. The Bulletin aims to provide current data and information to practitioners and policy makers emphasising the value of orienting services towards prevention, promotion and early intervention and to support effective public health interventions.

**Editorial correspondence**

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