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Health impact assessment in urban settings

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Our future is urban and the health impacts of that urbanisation are a concern internationally, nationally and locally within NSW. In 2008, for the first time in history, half the world's population will live in cities.[1] Growth in urban areas now accounts for the world's *entire* net population growth.[1] Australia is already one of the most urbanised countries in the world, with more than three quarters of the population living in urban areas.[2] The NSW population, over six million, grew by almost 10% in the past decade.[2]

This issue of the *NSW Public Health Bulletin* builds on the growing interest in the impact of urbanisation in NSW and focuses on the contribution of health impact assessment (HIA) to sustainable urbanisation. The recently released *State Plan*: *a new direction for NSW*[3] is a timely reminder that health has an active role in the growth and sustainability of the state. The issue shows that our investment in HIA helps the health sector to better consider the health impacts of urbanisation.

The issue builds on the experience of the NSW HIA project over the past five years. Funded by NSW Health and led by the Centre for Health Equity Training Research and Evaluation, the project has developed the capacity of the health system to undertake HIA. The central element of the project has been 'learning by doing',[4] by undertaking HIAs on policy, program and project proposals. As part of this work, HIAs have been conducted on proposals that directly influence sustainable urban planning; many of these have been described as case studies in this issue.

The NSW Health Impact Assessment Project has formed strong relationships between project participants and colleagues and experts in HIA and in the field of healthy urban planning internationally, nationally and locally within NSW. Many of these colleagues have contributed to this special issue.

Four important messages concerning HIA, health and urbanisation are presented.

The first message reinforces the growing understanding that human well-being and the impacts of urbanisation are closely related.[5] Local and international authors with experience in HIA, health and urban planning provide similar arguments that:

- health and urban planning are inextricably linked
- further action is required and
- HIA provides real opportunities to progress this action.

The second message is that HIA has been proven to be a mechanism by which health and other sectors involved in sustainable urbanisation can move beyond recognition of common concerns to concrete action. The HIA case studies included in this issue emphasise the value of constructive engagement using the structured and stepwise approach of HIA.

The third message, highlighted by the case studies on the Bungendore, Lower Hunter and Illawarra impact assessments (see Gow et al.; Wells et al.; Furber et al.; this issue), is that HIA should not be limited to urbanisation in big cities. The proportional growth in regional centres and rural towns often dwarfs that occurring in large cities and the impact on existing resources, physical and social infrastructure can be enormous. This situation is not unique to Australia. As noted in the State of the World Population 2007 report 'contrary to general belief, the bulk of urban

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population growth is likely to be in smaller cities and towns, whose capabilities for planning and implementation can be exceedingly weak'.[1]

The fourth message is that successfully responding to the future challenges and opportunities of urbanisation will require a range of actions such as:

- a shift towards healthy public policy increasing the capacity of the health sector to engage intersectorally on urban planning
- understanding the regulatory framework that governs urban planning in NSW
- learning from past lessons concerning advocating for health as part of urbanisation and
- building on the strengths of, and meeting the challenges set by, HIA in NSW to date.

At all levels of the urbanisation debate – global, national and local, it is apparent that health must become actively engaged in order to enhance the sustainability of planning activities. HIA is now established as one tool to facilitate that engagement. This issue of the *Bulletin* shows that NSW is now in a position, as a world leader on HIA, to support the pivotal future role that urbanisation will play in influencing the health of populations and communities.

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Influencing urban environments for health: NSW Health's response

EDITORIAL

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The burden of preventable chronic disease is rapidly increasing in New South Wales.[1] If the potential for preventing chronic diseases is not fully harnessed, it is projected that treatment costs alone for people with diabetes, cardiovascular disease, cancers and musculoskeletal conditions in NSW will rise from approximately $3.3 billion in 2000–01 to $6.1 billion by 2020–21.[2] Addressing this challenge will require a multifactorial approach and there is a growing body of evidence around the links between risk factors apportioned to increasing urbanisation and, more broadly, to the built environment.[3–5] Creating environments that promote health can play a significant role in reducing rates of death and disability from chronic disease.[6] Compounding the challenge of addressing potentially avoidable chronic diseases is the sustainability of our urban communities, with increasing populations in and around Sydney and coastal NSW in particular. For example, over the next 20 years, population increases of over 50% are expected in several coastal townships.[7]

The importance of urban planning for health has been identified as a key priority for the NSW Government as described in the: NSW State Plan,[8] NSW State Health Plan,[9] *Healthy People NSW*,[10] and the NSW Population Health Priority Taskforce. In particular, *Healthy People NSW* identifies health impact assessment (HIA) as a key tool for affecting change and to strengthen health input into planning decisions.[10]

While in NSW it is local government planners and urban designers who have the ability to directly influence and shape the urban environment, NSW Health is increasing its engagement at both a state and regional level. This issue of

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the *Bulletin* reflects the increased level of activity and innovation by Health Services across NSW to influence the shape of the urban environment, through the use of HIA in projects from housing regeneration to population growth to capital works, in line with the growing body of evidence.

For a number of years, NSW Health has invested in and worked towards creating a more cohesive partnership approach to urban planning projects with state and regional planning bodies including the NSW Local Government and Shires Associations, through the NSW Health Impact Assessment Project, and health risk assessment work. The learning-by-doing approach to HIA outlined in this issue highlights the practical impacts on planning that such a tool can have. HIA has emerged as a good mechanism through which to engage with the urban planning sector, as evidenced by the successful implementation of several joint Area Health Services and local government HIA projects in NSW in recent years. An acknowledged leader in this has been the Greater Southern Area Health Service, whose active engagement with the planning sector recently earned them an award from the University of NSW and the NSW HIA Steering Committee.

The coming year sees several activities being conducted in this domain including a statewide review of the activities being undertaken. This review will identify opportunities to build on the successes of recent years and to maximise NSW Health's impact on urban planning and regeneration frameworks. Another highlight will be the 7–9 November 2007 South East Asia and Oceania Regional Health Impact Assessment Conference to be held in Sydney. This will be jointly hosted by NSW Health and the University of NSW Research Centre for Primary Health Care and Equity. The conference will be an important vehicle to facilitate greater engagement between the health and planning sectors, as well as academia, both in NSW and the South East Asia and Oceania regions.

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South East Asia and Oceania Regional Health Impact Assessment Conference

The Conference will be held in Sydney, Australia from Wednesday 7 to Friday 9 November 2007 at the Menzies.

This event will bring together health impact assessment (HIA) practitioners from South East Asia and Oceania for the first time. The conference will provide an opportunity for delegates to learn, meet other practitioners, network, share experiences, contribute ideas and to reflect on HIA.

HIA is a structured process for looking at the positive and negative, intended and unintended impacts that may eventuate from projects, programs or policies. It also considers the distribution of impacts across the population and within affected groups.

For registration information, including an updated conference program, visit the HIA conference website, www.hia2007.com

International perspective on health impact assessment in urban settings

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Abstract: Health impact assessment is being used to support and deliver healthy and sustainable communities in major urban areas around the world. This article discusses some of the latest international developments in the use of health impact assessment in urban settings: in North America, Europe, Africa, Asia and Australasia. It outlines the implications of this work and describes some of the challenges facing practitioners in predicting health impacts and providing solutions to protecting and enhancing health and wellbeing in urban settings.

HIA is a systematic approach to identifying the differential health and wellbeing impacts of proposed plans and projects within a democratic, equitable, sustainable and ethical use of evidence framework. The goal is that positive health impacts are maximised and negative health impacts minimised within affected, or potentially affected, populations.[1,2] It uses a range of structured and evaluated sources of qualitative and quantitative evidence that include public and other stakeholders' perceptions and experiences as well as public health, epidemiological, toxicological and medical knowledge. It aims to influence policy and decision-making by:

- providing a rigorous analysis of the potential impacts and options for enhancing positive impacts
- mitigating negative ones, and
- reducing any health inequalities that might arise from a proposed policy, plan, program or project.

Over the last three years, health impact assessment (HIA) has come of age and gone global. There are exciting developments, at policy and project levels, in North America, Europe, Africa, Asia and Australasia. This article describes some examples of the innovative HIA work occurring in each of these continents.

North America

Unlike the USA, Canada has a longstanding record in the field of HIA, healthy public policy and the consideration of the health impacts of policies, plans, programs and projects.[3,4] Only in the last few years has HIA gathered momentum in the USA, with the growing recognition that health and wellbeing are critical issues for major urban areas.[5] Leading institutions, notably the Centers for Disease Control and Prevention (CDC) in Atlanta, have begun to carry out HIAs on urban development plans and projects.[6–8]

One example of the imaginative work happening in North America is the work of the Design for Health initiative. This collaboration between the Metropolitan Design Center at the University of Minnesota and Blue Cross and Blue Shield of Minnesota, two major health insurance associations, aims to bridge the gap between community design, healthy living and land development planning.[9] The Design Center's work is done by an interdisciplinary team with backgrounds in architecture, landscape architecture, planning, public health and landscape ecology. They have created a HIA tool and a set of HIA materials and information for other agencies and organisations in Minnesota to use when developing new urban plans and projects.

Europe

HIA has been practised in Europe for almost a decade with the UK, Finland and the Netherlands among others being major proponents.[10] In Europe the major driving forces for the way HIA is being used in urban settings have been the health inequalities, sustainability and climate change agendas.

One example of the leading edge HIA activity in Europe is the work of the London Healthy Urban Development Unit. This Unit is investigating the links between urban planning and health and has developed a range of HIA tools to help improve health and wellbeing in London.[11] Their financial model is the first of its kind internationally to estimate the capital and revenue costs of health-care services for new housing developments and extensions to existing urban areas. It is also pioneering the use of Geographical Information Systems to map existing health, social, leisure and cultural facilities and plan the situation of new facilities to ensure that they are evenly distributed and accessible to all.

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Africa

In Africa, HIA, as part of environmental health impact assessment, has been practised by major development agencies for over two decades and, similar to other southern regions and continents, has a strong history of doing social impact assessment alongside and within environmental impact assessment.[12,13] The major driving force for HIA practice in Africa is the double burden of disease that many middle-income countries are facing from both infectious disease, such as HIV/AIDS and malaria, as well as the so-called developed country chronic diseases, such as obesity, heart disease and cancer. In addition, they need to ensure that economic development projects enhance the health and wellbeing of affected communities.

An example of a group undertaking groundbreaking HIA work is the Development Bank of Southern Africa in South Africa. It is currently working to mainstream HIA by embedding the consideration of health impacts within its existing environmental, social, economic, technical, financial and institutional appraisal processes for investment funds and technical assistance.[14] The Bank is using an organisational development model to raise awareness of HIA and is developing health impact guidance and training for the Bank's in-house specialists, external clients and partners.

Asia

Similar to the African situation, development and the health burden from infectious and chronic diseases have been drivers for the use of HIA in Asia. HIA has been on the agenda since 2000, with Thailand and Laos leading the way.[15–17] Both Thailand and Laos are embedding HIA within the environmental impact assessment framework; however, the HIA legislation in Thailand has gone beyond environmental impact assessment and taken a more holistic and far-reaching perspective on assessing the health and wellbeing implications of new plans and projects.

One example of the pioneering work in Asia is that of the Health Systems Research Unit in Thailand.[18] This work has highlighted the importance of history, culture and spirituality in enhancing individual and community wellbeing. In its HIA work on high-rise developments and urban planning in Chiang Mai, the Unit showed that unplanned development was changing the historical, cultural and spiritual significance that Chiang Mai, with its beautiful architecture and temples, has in the Lanna territory. This change, in turn, was affecting the health and wellbeing of the residents of Chiang Mai.

Australasia

Australia and New Zealand have a long history of HIA with both countries having had national drivers to incorporate health and wellbeing issues within the environmental impact assessment process and the sustainability agenda, and as part of the healthy urban planning movement.[19,20] The drivers for HIA have been health equity and the recognition that health and wellbeing are linked with where people live, work and play. Both countries have undertaken HIAs at national, regional and local levels. Examples of urban HIAs include the Shellharbour Foreshore Management Plan and the South East Queensland Regional Plan in Australia, and the Christchurch Urban Development Strategy and Greater Wellington Regional Land Transport Strategy in New Zealand.

An example of cutting edge HIA work in Australasia is that from the Centre for Health Equity Research, Training and Evaluation (CHETRE). They have developed a learning-by-doing approach to embedding HIA in the health and non-health agencies working in NSW.[21] This approach involves supporting and mentoring health and non-health professionals to identify, plan for, carry out and follow HIAs on new proposals on which these professionals are working. This approach has raised awareness of the value of HIA and built the capacity of agencies in NSW to undertake HIA.

The future of HIA in urban settings

These varied examples show the breadth and depth of HIA practice in urban settings around the world. At one end of the spectrum there is a discernable global movement to undertake separate HIAs on urban policies, plans, programs and projects. At the other, there is a concerted push to integrate HIA into other forms of impact assessment, such as environmental impact assessment, social impact assessment and strategic environmental assessment, as well as to incorporate health into the wider sustainability agenda at national, regional and local levels.[22] The 21st Century is likely to see a blossoming of public health, in a similar way to sustainability, to once again become an integrated part of policy and practice. At policy level, policies and plans from land use, transport and defence to education, crime and social welfare will integrate the assessment of potential health impacts within their policy and plan-making processes. Similarly, at project level, whether it is nuclear power stations and energy-from-waste facilities or housing and transport projects, all major projects will undergo some form of assessment of their potential health impacts whether as a separate HIA or as an integrated component within an environmental or social impact assessment.

However, there are three big challenges facing HIA in urban settings. First, the need to develop a robust and broad theoretical foundation that takes on board theoretical understandings from fields as diverse as urban planning and design; risk perception, communication and management; sociology and anthropology; environmental psychology and economics; as well as the more classical epidemiology, toxicology, health promotion and public

health.[23] Second, to do more systematic follow-ups, plans and projects to evaluate: their actual health impacts, the predictions made in any HIAs that were undertaken on them and the value HIA had in changing the final design and implementation.[24] And third, to learn more from each other both within countries and internationally. The health issues we are facing, both North and South, East and West, have more similarities than differences. It is only by having a vibrant, international HIA community that HIA practitioners can play a full part in helping to create a more sustainable, equitable and healthy world.[25,26]

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Health impacts of urban development: key considerations

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Abstract: The urban environment is an important determinant of health. Health impact assessment is a tool for systematic analysis of the health consequences of urban development and management. This paper identifies key considerations, including opportunities for physical activity, food access and local economic development. Time use by urban residents has health implications. The schedule for infrastructure development in new release areas (in particular transport, education and health infrastructure) also has health implications. Health impacts should be considered a primary outcome of urban development and management.

Health impact assessment provides a framework to improve decision-making about plans, policies and programs.[1] The framework has been used to assess impacts of urban development, in both urban regeneration projects and new release areas (see Vohra in this issue). Currently, there is renewed interest in the health impacts of urban development because of an improved understanding of relationships between urban environments and contemporary epidemics of chronic disease (cardiovascular disease, diabetes, chronic respiratory disease and some cancers), injury and depression.[2]

Contemporary priorities

Our modern maladies are consequences of human–environment interactions.[3] There are three principal problems with our current pattern of urban development: limited opportunities for incidental physical activity and associated sedentarism; concentration of food retail in regional centres and associated local food insecurity; and physical separation of residential areas from employment. Three main urban planning responses are needed.

1. Improved opportunities for incidental physical activity

To improve conditions for walking and cycling in cities, it is necessary to 're-conquer' the city, pushing back cars.[4] Gehl argues that public space has always served as meeting place, marketplace and traffic space. In many cities, car traffic and parking have gradually usurped public space in streets, parks and squares. This resulting situation can make it unpleasant and unsafe to walk and cycle because of noise, air pollution and risk of injury. Gehl is currently advising the City of Sydney on a new direction for city spaces and ways to promote active transport (walking and cycling). Several tools to support design and planning for active living are available on the Internet.[5,6]

2. Planning for healthy food choices and sustainable food production

Some parts of our cities have a vibrant food culture with cafes, restaurants, farmers' markets, supermarkets, bakers, greengrocers, butchers, fishmongers and delicatessens. In other parts of our cities, local food supply may be restricted to a retail store at a petrol station and some fast food restaurants. Healthy food choices may only be available in a regional shopping centre. With the seeming inexorable expansion of urban areas, a large amount of our fertile agricultural land is being covered with housing and opportunities to grow food locally are being lost. Urban plans consequently should address food supply by promoting sustainable food production and improving access to healthy food.[7,8]

3. Suburban economic development and a return to localism

In post-industrial societies like Australia, there is no longer a public health imperative to separate most employment from residential areas.[3] Planners now advocate mixed-use development and more emphasis on suburban economic development.[9] Public health workers should support this advocacy because there are health benefits from living close to work (shorter travel times and improved prospects for walking or cycling to work). There is a strong case for a return to localism within cities,[10] enabling people to meet their daily needs in their local area. This will have benefits for both the health of people and the health of the environment.

Time as a metric for health and sustainability

Time use choices have health impacts.[11] One important use of time for urban residents is for transport to work, education, recreation and social activities. If the transport

mode is active, such as walking and cycling, opportunities for incidental physical activity are provided. If the transport mode is sedentary, such as a car, and particularly if the travel times are long (more than 30 min), the time available for recreation, for family and for community participation is reduced. Time use is potentially an important metric for healthy and sustainable cities and warrants greater emphasis in urban and transport planning.

Timetabling infrastructure in large-scale urban developments

Plans for large-scale urban development usually include plans for infrastructure, such as transport, schools, higher education institutions, health and other services. The timetable for delivery of infrastructure is an important issue in urban development as delays in construction of transport infrastructure, such as a railway line, will affect people's transport choices. Transport patterns are difficult to change once they are established. If mass transit is provided from the outset, it is likely to increase the proportion of no-car and one-car households, with benefits for the health of people and the health of the environment. Consequently, it is important that essential infrastructure is delivered early and on time.

Thinking ahead

A focus on healthy urban planning is important because once a development is built retrofit changes are difficult and costly. Health impact assessment has utility for large-scale urban development projects. Importantly, planners should also consider health impacts in everyday decision-making, because the cumulative impacts of small decisions can be as important as the decision on a large project.

Health is not just relevant to urban planning and development. Health should also be considered a key outcome of the ongoing management of cities. The ecological concept of 'adaptive management' is relevant.[12] The garden cities paradigm of urban planning was a response to health concerns in the 19th Century. In the 21st Century, Australia has a population of more than 20 million. It is neither healthy nor sustainable for us all to live in garden cities. Certainly, alternate models of urban development, including aspects of 'new urbanism', may have unintended health consequences. It is therefore essential to monitor outcomes and to adapt over time.

Our habitat (now increasingly urban) is a determinant of our habits (including health behaviours). Planners and public health workers should join together and advocate for due emphasis on human health impacts in urban decision-making.

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A planner's perspective on the health impacts of urban settings

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Abstract: The profession of town planning originated out of concerns for the health and well-being of people. Progress was made as crowded and unsanitary inner city slums were replaced with suburban environments where individuals could access green open spaces and clean air. With significant increases in urban populations and the geographic spread of the city, over time these environments became increasingly unhealthy. This paper provides an overview of how modern urban environments impact on people's physical and psychological health. This understanding will assist planners and health professionals to ensure that HIA and other related impact assessment tools are effective in identifying and ameliorating potential adverse well-being outcomes of different urban policies and proposals for varying scales of development.

The links between town planning and health go back to the origins of town planning. The creation of zoning to separate dirty, polluting uses of land from the places where people lived was an important public health initiative. While it may not have been explicitly expressed as such, inherent in this approach was a clear connection between the health of communities, the environment and urban planning. And while planning has continued to address environmental issues that positively contribute to well-being, a specific focus on health has, until recently, taken a back seat.

Understanding exactly how different urban settings affect well-being is an important step in bringing planning and health closer together. Starting with planning's historical links with public health reform, this paper provides an overview of how different urban settings affect physical and mental health – from the far-flung suburbs to the inner city. The situation is complex: indeed, both inner and outer urban environments have implications for health and well-being. These implications need to be better understood so that health impact assessment (HIA) and related processes, such as environmental and social impact assessments, are more effective. These tools, used alone or in combination, can enhance the identification of potential health impacts before a development approval is granted or a planning policy finalised making cities healthier places for all.

History of town planning's origins in health

Early definitions of town planning reveal that the health of the community was a key objective of the fledgling profession. Sir Patrick Abercrombie, an influential English planner in the early 20th Century, described the principles of planning quite simply as beauty, health and convenience. And while beauty came first in his list, it was 'the quality which must run through the whole in order to lift sanitation and engineering to the level of civic design and the dignity of city life'.[1] Australian planners also saw the achievement of a healthy community as central to their work. In practical terms, concerns for the health of city inhabitants – particularly those living in overcrowded inner-city slums – stimulated the development of two principles that have dominated planning ever since: the concept of zoning and that of the suburb.

Zoning plans focussed on separating dirty and polluting uses, such as factories, from clean uses, such as residential and recreational areas. Known as land-use zoning plans, these schemes assumed that planning activity could rationally order and control land use and development. The suburb was typified as the best place to bring up families in wholesome and healthy circumstances away from the squalor and poverty of the densely packed inner city.[2] Post World War II housing programs boosted suburban development and the availability of the motor car further stimulated suburban expansion.[3]

As cities grew, so did the geographical extent of the suburb, along with the separation between home and work. This situation has become increasingly problematic for human health; planning must now return to one of its original objectives – that of enhancing public health.

The impact of urban settings on health

The suburban setting

The suburb initially offered a quiet and healthy living environment separated from working areas, typically

characterised by polluting industries. But as city populations increased and cleaner industrial processes were introduced, the need for a large geographical separation between housing and places of employment diminished. Today, it is the very separation that is causing a problem for the physical and mental health of communities.[4]

The positioning of different land uses in a city, and the ways in which they are inter-connected, significantly influence how individuals travel from their homes to work, school, shops, recreational areas and other public facilities. In Australia, suburbs have generally been developed with low-density residential forms – typically a house on its own block of land – and poor public transport infrastructure. Street subdivisions are characterised by convoluted cul-de-sacs rather than the traditional street grid. While the former might make for a safer street – neighbours looking out for each other and little through traffic enabling children to play on the road – these subdivision patterns do not encourage walking. It takes longer to get between places because the convoluted road networks mean that the actual distance travelled is much greater.

The high level of car dependency in suburban localities has significant health and well-being implications. Retail facilities, particularly stand alone shopping centres, are designed with the car user in mind, are generally poorly connected to public transport and can be unfriendly to pedestrians. As parents worry more and more about their children's safety, both from the real and perceived dangers of strangers and vehicles, youngsters do not walk to school or play games outdoors. People who commute long dis-

Table 1. Connecting health and planning

Health objective	Current concerns	How can planning assist?
Healthy lifestyles	Sedentary, stressful and isolated lifestyle are factors in conditions such as heart disease, stroke and depression	Physical environments which provide attractive and appropriate open space; make it easy and enjoyable to walk to local facilities, catch public transport and connect with people
Social cohesion (sense of belonging)	Isolation from human interaction and friendship networks contribute to depressive conditions; separation of communities	Safe environments, attractive and well used public spaces, culturally appropriate spaces and mixed uses encourage human interaction, social cohesion and sense of belonging
Housing quality (importance of home)	Poor housing and homelessness – lack of adequate and appropriate physical shelter contributes to poor physical and mental health	Good individual housing design; housing mix – type and tenure; affordable housing; importance of 'home' in self actualisation and creating a sense of well-being and belonging to a community[10]
Access to work	Unemployment leads to financial stress which has severe and comprehensive health implications	Planning and economic policy linkages; provision of local and accessible employment opportunities
Accessibility	Poor accessibility encourages car dependencyand resultant inactivity health problems; high air pollution has serious health implications	Physical environments which make it easy, safe and enjoyable to walk to local facilities and catch public transport (which must be cheap and abundant); provision of cycle ways as viable transport options; traffic calming
Local, low-input food production	Inadequate access to cheap, healthy and culturally appropriate food leads to consumption of high energy 'fast' foods – linked to obesity; especially problematic for disadvataged communities	Provide opportunities for community gardens and fresh food markets; retain small-scale farms and gardens; provide for a mix of food retailers in local shopping centres; good use for private yards
Safety	High volumes of traffic cause death and serious injury; also dissuade people from exercising as do concerns for personal safety – over use of the car increases physical inactivity and resultant health problems	Traffic calming and provision of good public transport; provision of safe walking routes and programs for children's journey to school; implementation of Crime Prevention through Environmental Design (CPTED) principles
Equity	Living in poverty results in physical and psychological deprivation; poor access to health facilities; high disease rates and premature death	Low cost housing; accessible local community facilities; local job opportunities; provision of environments that encourage interaction and connection
Air quality and aesthetics (protection from pollution, noise; provision of attractive environments)	Air and noise pollution cause serious disease – breathing difficulties and possibly asthma; loss of hearing; unattractive and polluted environments contribute to inactivity	Provision of reliable, cheap, safe and abundant public transport; reduce car dependency; ensure good design in public spaces; encourage low level energy design (ie sustainable development)

Source: After Barton and Tsourou.[12]

tances from home to work often do not have the time or energy to form meaningful relationships with neighbours. Similarly, family relationships can suffer from long absences from home. Commuters also have less time to spend using local healthy planning innovations such as cycleways and walkable neighbourhoods. The net result is reduced community interaction and social capital.

But it is wrong to characterise the suburb as being all bad for health. In particular, the backyard is a healthy resource. It is safe for active children's play and readily accessible on a daily basis. Private yards, where gardens grow, provide fresh fruit and vegetables which are both economical and culturally appropriate.[5–7] These spaces also provide opportunities for regular and enjoyable physical activity. Families can socialise there, and have pets, which bring many recognised health benefits to humans.[8]

Consolidated city settings

In contrast to the suburb, denser, inner residential areas increasingly characterise Australian cities. These environments are rightly lauded for their walkable local destinations, proximity of living and working areas, plentiful and easily accessible recreational and cultural facilities, together with good public transport infrastructure. Consolidated inner localities epitomise the objectives of sustainable city planning with its focus on high residential densities and lower levels of car dependency. However, while these areas have significant health benefits, there are problems that need to be acknowledged. Heavily trafficked, polluted, unsafe and unpleasant environments do not promote walking. It is difficult to access local food production opportunities, and cheap, healthy and culturally appropriate food can be hard to source. For disadvantaged communities, this can lead to the consumption of high energy fast foods, which are in turn linked to obesity and other adverse health conditions.

Redevelopment of the inner city has increased housing costs,[9] forcing those without the necessary financial resources into poor or inadequate accommodation, and in extreme cases, homelessness. And for those able to afford to live in the inner city, body corporate rules and regulations can result in a reduction of personal autonomy and power at home.[10] Pets, for example, are often prohibited from high rise apartments.

Less readily accessible open space for active children's play is another adverse health consequence. A well-designed park may be part of a residential apartment complex, but if overly controlled it can dissuade some users and, for those living high above the ground, easy access for children is not an option. Increased energy use in high-density developments also raises health concerns. Air conditioning systems, clothes driers and lifts, commonly installed in high rise buildings, can increase greenhouse gases, in turn adversely affecting the climate and well-being of entire populations.[11]

Summary

Urban settings have different impacts on human well-being. A complex picture is revealed which necessitates a sophisticated understanding of the health implications of both low- and high-density urban forms. This understanding is particularly important for those undertaking HIA or related impact assessments on proposals for urban policy, as well as applications for specific developments – from single sites to entire neighbourhoods and regions. Table 1 summarises the relationship between health objectives and the ways in which good urban planning can contribute positively to community well-being.[12]

Planning and the HIA process

With an understanding of how different urban environments affect well-being, planners are in a position to assess the health implications of proposed plans and developments before they are enacted or approved. The consideration of specific health impacts is becoming increasingly important as planners are reacquainted with the promotion of health as a core component of their work. Together with their existing knowledge of the environmental and social impact assessment processes, planners are in a good position to make positive contributions to the HIA process.[13] Adverse impacts of different proposals can be identified before implementation and changes made to the policy or development to ensure that the eventual outcome will support healthy behaviour of individuals and entire communities.

Conclusion

Health professionals and planners are beginning to see the benefits of working together. Many are realising that this is the only way forward to address the serious lifestyle-related health problems in contemporary communities. While working across professional and disciplinary boundaries is proving difficult, it is critical that we find pathways to connect planning and health. An understanding of how different urban settings impact on health is an important first step.

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Learning by doing: the value of case studies of health impact assessment

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Abstract: The nine health impact assessment (HIA) case studies in this issue represent a considerable contribution to the HIA literature and provide a number of lessons. These lessons include the value of using evidence in HIA to aid decision-making; the various forms that stakeholder and community involvement in HIA can take; and the fact that HIA can act as a catalyst for intersectoral engagement. They also highlight challenges faced by HIA practitioners, including time, methods of assessment, developing evidence summaries and considering equity.

Much of what has been written on health impact assessment (HIA) has focussed on what health professionals and impact assessors 'should do'. HIA 'should' be undertaken early enough in planning to allow changes to be made;[1] HIA 'should' be thought of as a group of research activities; HIA 'should' use a range of data;[2] and HIA 'should' involve robust methods and evaluation and monitoring.[3] The nine case studies included in this issue represent a significant shift from 'should do' to 'did'.

As cases based on the practice of HIA, the articles discuss the benefits of HIAs in urban settings and the impact they have on decision-making. They also challenge us to improve the ways we conduct HIA. In addition, the cases highlight the useful role that HIA can play as a tool for health systems seeking to respond to the potential health impacts of urbanisation and growth.

The case studies included in this issue of the *Bulletin* have been conducted on a wide variety of proposals and across a wide range of settings, including local government, neighbourhood renewal, strategic development and population growth, land use planning, social planning and capital works projects. Despite their diversity, they offer common lessons. This article summarises some of those lessons.

1. Value of evidence to decision-making

Many of the case studies emphasise the positive role that evidence regarding potential health impacts played in influencing and assisting decision-making, resulting in issues being considered that otherwise might not have been. The case studies also support the notion that evidence can supplement the frameworks that are currently used to develop and implement proposals, such as best practice models.[4,5]

2. Community and stakeholder involvement

Stakeholder and community involvement in the HIA can take various forms and serve several purposes. Stakeholders' views about potential impacts may be explicitly sought through the identification step[6] or they may be consulted to assist with the assessment and prioritisation of impacts. Community and stakeholder comment may also be sought on the draft HIA report and its recommendations. As the case studies demonstrate, stakeholder engagement can enhance the acceptability of a HIA's recommendations and identify issues that may not have been considered in planning and decision-making.

3. Intersectoral engagement

HIA may act as a catalyst for intersectoral engagement. This can occur by going through the process of the HIA, as happened with the Christchurch HIA (see Stevenson et al. in this issue), or the HIA may spawn subsequent activities, as occurred with the Granville HIA (see Tennant and Newman in this issue). The case studies show that HIA can live up to the rhetoric about ensuring that potential health impacts are considered in health and other sectors' decision-making and in the development and implementation of new activities.

4. Range of impacts considered

The case studies also demonstrate that HIAs can successfully examine a broad range of potential heath impacts (Table 1) that include both health protection and health promotion issues.

5. Evaluation

Internationally, it is acknowledged that there has been a lack of evaluation of completed HIAs.[7] This issue of the *Bulletin* represents a substantial step towards addressing this deficit. Most of the case studies in this issue include an evaluation of the process, examining how the HIA was conducted and how it was perceived by those involved. Several studies also include details of impact evaluations

Table 1. Summary of the impacts considered in the health impact assessment case studies included in this issue of the *NSW Public Health Bulletin*

Air quality	Physical activity
Asbestos exposure	Safety and perceptions of safety
Buffering and exposure to toxins	Social cohesion
Community and social services	Street-level design and local urban form
Economic development and business	Suburban and regional urban form
Food and nutrition	Traffic
Housing	Transport
Injury	Waste management
Parking	Water availability and quality

that examined the extent to which the recommendations of the HIAs were implemented and what related changes occurred as a result of the HIAs.

6. Challenges in conducting HIAs

Four major challenges are evident in the HIA case studies:

- time constraints
- methods used in the assessments
- availability of synthesised and summarised evidence
- equity.

Time

Time is a recurrent issue in the case studies. Often, there is only limited time available to undertake HIAs. This is partly due to the speed with which decisions are made once a proposal is detailed enough to assess. Compounding this, many of the HIAs in this issue represent the first HIAs that were undertaken by their agencies, and the HIA practitioners had to learn 'on the job'. However, this situation may have produced benefits – partner agencies engaged with the learning process and provided important insights into how decisions would be made regarding the proposal, emphasising the value of learning by doing.

Identifying potential impacts

The methods used to identify potential health impacts in the case studies include literature reviews, key informant interviews, stakeholder workshops and analysis of options and scenarios. Although these methods are appropriate, the challenge for HIA is to enhance the rigour of the methods used while still remaining timely and relevant to decision-making. This will not only improve the predictive accuracy of HIAs, but also ensure that assessments will be defensible when subjected to detailed scrutiny. This aspect will become more important as the use of HIAs becomes more widespread.

Summaries of evidence

Summaries of evidence assisted in several the case studies, enabling the assessors to reliably identify and predict potential impacts in a timely fashion. This highlights the need for consolidated summaries of the health impacts of a range of activities. These summaries are not required on issues where numerous reviews of the evidence already exist, such as the impacts on health of the built environment and urban form.[8–10] Rather they are needed on important and somewhat neglected issues such as water and social cohesion, both issues that were considered in several of the HIAs in this issue.

Health equity

Considering the distribution of impacts is a feature of many of the HIA case studies, though this largely takes the form of looking at the impacts on Indigenous groups. While essential, this fails to meet the minimum criteria for considering differential impacts within HIA in terms of:

- age
- gender
- socioeconomic position
- culture and ethnicity
- locational disadvantage
- existing levels of health and disability.[11]

A meaningful consideration of health equity is a substantial challenge facing HIA. If HIAs fail to systematically assess the distribution of potential impacts not only will they be failing to realise one of their key principles,[12] but they will also be undermining a key element of the utility and effectiveness of HIAs. For example, rates of diabetes in Australia are twice as high in the poorest areas compared with the wealthiest ones.[13] If we fail to adequately assess how the impact of measures designed to curb or address diabetes will be distributed, we will undermine their effectiveness at a population level.

Addressing health equity in HIAs is therefore not simply a social justice issue but a central concern in ensuring the sustainability of urban environments, health systems and the long-term use of HIAs. The *Equity Focused Health Impact Assessment Framework* provides clearly structured guidance for practitioners seeking to improve the consideration of equity within their HIAs.[14]

Conclusion

These case studies reflect the growing pool of experience of HIA in action and the considerable expertise in HIA that exists in Australia and New Zealand. They provide considerable insight into how HIA works in practice, the challenges faced and the benefits that can be derived from undertaking HIAs in urban settings.

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Bungendore health impact assessment: urban development in a rural setting

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Abstract: As the majority of the determinants of health are controlled outside the health system, the challenge for promoting health is to find a way of influencing these determinants. Health impact assessment was used in Bungendore, NSW, in an attempt to influence decisions relating to scenarios for urban development. Twelve months after the project was completed, interim evaluation has revealed evidence that the health impact assessment has had a positive effect on preliminary land-use planning work.

There is considerable evidence that health is a product of more than just biology and personal choices of lifestyle. A range of other factors including social determinants and the built environment are regarded as creating the context in which health is either enhanced or diminished.[1,2] The challenge, however, lies in the fact that the majority of the determinants of health are outside the direct control of the health system. Health impact assessment (HIA) is one methodology that has been posited as having the potential to add concepts of health to the agenda of non-health agencies, particularly in the context of land-use planning.[1,2]

Process

Greater Southern Area Health Service has established relationships with various local government areas to address health promotion priorities, largely through social planning processes.[3] Collaboration using HIA was seen as having the potential to extend such relationships. The Bungendore HIA was established as part of the NSW Health Impact Assessment Project. The project was one of five developmental sites established to further explore use of the HIA methodology.[4]

Bungendore is a small NSW town of approximately 2000 people 35 km east of Canberra within the Palerang Local Government Area. The Bungendore HIA examined the potential health effects of two possible residential developments for Bungendore. The first scenario considered Infill Development within the existing village boundaries of Bungendore, for the next 10 to 15 years, until available land supplies have been exhausted. The second scenario was a combination of Infill Development and Greenfield Development (where adjoining agricultural land is rezoned for residential purposes).[5]

The HIA was conducted following the six steps described by Simpson.[6] The analysis considered the impact on physical activity, water and good neighbourliness. Neither development scenario was found to be preferable to the other in terms of potential health impacts. Instead, several health-promoting elements were identified for incorporation into the Palerang Local Environmental and Social and Community Plans (Table 1).

Evaluation

Twelve months after completing the HIA, a process and interim impact evaluation was undertaken.[7] The evaluation updated and reported on the outputs of the HIA with a view to a further evaluation in 2008. The process evaluation was a document analysis focussing on the processes involved in conducting the HIA, including comparison between initial project plan, screening report, scoping report and actual project progress. The evaluation was guided by the question: was the project implemented as intended?[8–11]

Overall, the document analysis confirmed that the project was implemented as intended, including the use of a rapid HIA methodology. It also identified that: (i) the use of a project agreement with identified responsibilities assisted in keeping the project on track; and (ii) earlier impressions that the steps of the HIA process are not necessarily discrete and linear were not supported by the documentation.

The interim impact evaluation aimed to determine if the proposed project outputs matched actual outputs. Project team members from Greater Southern Area Health Service and Palerang Council reviewed the document analysis and discussed the outputs. Proposed outputs of the project were that the HIA would: (i) be used in the development of a single Local Environmental Plan, Development Control Plans and Developer Contribution Plans for Palerang Council, (ii) be used in development of the Palerang Council Social Plan, and (iii) foster a new and productive relationship between Palerang Council and the Area Health Service.

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Table 1. Health-promoting elements to incorporate into the Palerang Local Environmental and Social and Community Plans

Physical activity	Water	Neighbourliness
• Mixed land use • High housing density • Existence of footpaths, cycle ways and facilities for physical activity • High street connectivity • Attractive and safe street design • Transport infrastructure and systems to link residential,commercial, business other destinations	• Quantity of water available for residential, recreational and commercial uses • Quality of water (fluoridation)	• Opportunities for incidental contact • Proactive conflict management • Increased participation in decision-making • Developing local identity • Supporting community groups / volunteering • Cultural and personal diversity • Civic spaces, local businesses and local employment

Results

Interim results show a match between proposed and actual outputs. Nine broad recommendations covering the identified health-promoting elements can be recognised in the Bungendore Discussion Paper July 2006, the preliminary document leading to the new Palerang Local Environmental Plan and accompanying Development Control and Developer Contribution Plans. Key recommendations were also incorporated into the draft Palerang Social and Community Development Plan 2006/07–2010/11.

Project team members commented that the HIA teamwork approach reinforced the value of cross-discipline planning and brought new knowledge, tools and skills to both organisations. The benefits of using the HIA methodology were noted and include: use of additional health-related evidence to support planning decisions verified by local consultation processes, a structured opportunity to consult with subject experts and the provision of additional tools to support decision-making.

Experience from Bungendore suggests that use of HIA can assist in inserting health-related concepts into broader planning processes.

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An equity-focussed social impact assessment of the Lower Hunter Regional Strategy

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Abstract: The Lower Hunter Regional Strategy prepared by the Hunter Department of Planning identifies how development in the region will be managed on a sustainable basis over the next 25 years. In order to inform decision-makers about the potential social and health impacts arising from the proposed population increase, the Hunter Regional Coordination Management Group, in collaboration with the NSW Premier's Department and Hunter New England Health, completed an equity-focussed social impact assessment of the strategy. The assessment illustrates how equity can be systematically addressed within an impact assessment process and provides insight into the mechanisms which led to equity considerations influencing the policy and planning agenda.

Population growth and its distribution, along with the availability of social and other services, have the potential to significantly affect the health and wellbeing of communities, both existing and new.[1,2] A holistic approach to planning for population growth is required that incorporates an assessment of impacts on health and wellbeing, as well as on the environment and economy.[3] One process that investigates these impacts is social impact assessment.

The Lower Hunter Regional Strategy, prepared by the Hunter Department of Planning, identifies how development in the region will be managed on a sustainable basis over the next 25 years in 35 sites that were configured by geographic location. The Department released a draft strategy in November 2005 and invited agencies and community members to comment by January 2006. The strategy, which projects a population increase of 125 000 people, has the potential to influence the health and social wellbeing of the community and the equitable access to and distribution of services across the region. The Hunter Regional Coordination Management Group, in collaboration with the NSW Premier's Department and Hunter New England Health, identified the need for a whole of government or multi-agency response to the draft strategy and consequently formed the social impact assessment Working Group to coordinate this response.

A social impact assessment provides the framework within which predictions can be made regarding the potential positive and negative impacts of a proposal while it is at the planning stage, to both maximise desired outcomes and minimise the costs or losses to communities.[4] The Working Group agreed that it was important to consider the social and health impacts of the strategy by conducting a social impact assessment.

Currently, within the Hunter region people experience varying levels of vulnerability.[5] The Working Group defined a vulnerable population as a subgroup of the overall population that is at higher risk of problem(s) that could be defined by age, gender, ethnicity or health status. To ensure that further vulnerabilities were not created by the strategy, and given that vulnerability is distributed inequitably across the Hunter region, the Working Group agreed that the assessment would have an equity focus. The aims of the social impact assessment were to: (1) assess levels of existing social vulnerability and access to services within the geographical sites identified by the strategy and (2) make recommendations based on the assessment of the appropriateness of proposed growth areas.

Equity was systematically addressed within the social impact assessment process by the use of an 'equity lens'.[6] This enabled the Working Group to assess whether the impact of increasing population in the proposed development areas would have a positive, negative or neutral impact on the wellbeing of the proposed communities, and if there would be a beneficial impact on wellbeing from the proposed population growth. In order to apply the 'equity lens' when deciding if the impact of implementing the strategy, whether negative or positive, was fair and just, the Working Group established a set of criteria which asked:

- Are we creating vulnerable communities?
- Are we increasing vulnerability?
- Are we re-allocating vulnerabilities?

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For ease of analysis and to ensure that the recommendations were practical, the 35 sites were clustered to 17 sites. A social vulnerability profile was created for each site to identify the impacts of the proposed population growth. This profile was based on a set of indicators that reflected the social determinants of health and well being (Table 1). These indicators were supplied by each agency participating in the Working Group and were based on their established links to social wellbeing and whether they were measurable at a collector district level. For each indicator a literature review established the evidence providing the link between the indicator and the effect on social wellbeing (see Table 1). These indicators were plotted for each of the 17 aggregate geographical sites to create a vulnerability profile. A consensus process was used by the Working Group to categorise the social vulnerability of the sites.

In addition to the social vulnerability profile, each agency represented within the Working Group was then asked to individually review the identified impacts for the 17 sites and comment on the findings according to each site's: (a) current level of social vulnerability, (b) current service capacity and (c) potential service capacity in the context of the proposed population growth.

The assessments of service capacity and the outcomes of the vulnerability assessment formed the basis of recommendations to the Hunter Department of Planning. The recommendations were framed to answer the question: 'What would need to occur for the area to accommodate the proposed population growth?' The results of the social impact assessment were submitted to the Hunter Department of Planning on behalf of the Hunter Regional Coordination Management Group, as a submission during the phase inviting public comment.

The recommendations were:

- strategic directions to be used to underpin regional planning in the Lower Hunter
- changes to infrastructure within vulnerable sites for the area to accommodate the proposed population growth
- ongoing monitoring of social vulnerability levels.

Table 1. Indicators used to determine the level of social vulnerability at 17 geographical sites covered by the Lower Hunter Regional Strategy

- Percentage of new dwellings within walkable distance of public transport (over five kilometres)[7]
- Individual and household weekly income
- Employment and unemployment rates
- Smoking rates among pregnant mothers[7–9]
- Socio-economic indexes for areas – socio-economic disadvantage[7,10]
- Socio-economic indexes for areas – index of economic resources
- Educational attainment score[10–13]
- Percentage of home ownership[14]
- Volunteer rates[15,16]
- Average distances nearest public transport

Feedback from the Hunter Department of Planning indicated that these recommendations were considered in the development of the final strategy.

The social impact assessment was a valuable tool to facilitate a whole of government approach to population and infrastructure planning and provide support to decision-makers in considering the potential consequences of their decisions. This social impact assessment also illustrates how equity can be systematically addressed within the process of impact assessment and provides practitioners with a practical example of how equity considerations can influence decision-makers.

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Greater Granville Regeneration Strategy

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Abstract: An urban regeneration health impact assessment (HIA) was conducted collaboratively with three major government agencies and the local community in 2005 and 2006 to identify health impacts of a major land use strategy outlined in the consultant's report for the Greater Granville Regeneration Plan – Stage 1 (Sydney: Hassall Pty Limited, 2005). Health impacts were identified and agreed recommendations were developed to ameliorate negative impacts, with a formal partnership agreement to progress implementation and monitoring. The Granville HIA has been influential in changing major policy initiatives of Parramatta City Council and the NSW Department of Housing, contributing to positive health outcomes for the Granville community.

The Greater Granville Regeneration Strategy health impact assessment (HIA) was based on the consultant's report for the Greater Granville Regeneration Plan – Stage 1[1] that was commissioned by Parramatta City Council and the NSW Department of Housing. The report identified ideas for improving Greater Granville grouped under five themes:

- Transport, traffic and parking, and pedestrian
- Business, industry and neighbourhood node
- Community facilities, medical services, childcare and schools
- Landscape, parks and recreation
- Housing and urban design.

The strategy included a review of public housing that would impact on over 1500 tenants including approximately 300 Aboriginal people. This potential impact raised both opportunities and concerns for the local community.

An urban regeneration strategy is a long-term plan for the social, physical, economic and environmental revitalisation of a defined area.[2] There is a relatively undeveloped research base to demonstrate connections between urban regeneration and health outcomes.[3] It is known that urban regeneration is a complex and multifaceted process that can have an impact on the wellbeing of communities through exemplification of housing availability and access to community facilities.[3] Urban regeneration strategies also have the potential to target inequity through initiatives addressing wider social determinants of health such as housing, transport, employment and better access to fresh foods.[4]

Methods

The Granville HIA followed standard HIA methodology,[5] incorporating a governance structure that utilised a community-based collaborative partnership framework. A Steering Group with representation from the Council, Department of Housing and the local community, encompassing Aboriginal and multicultural communities, was established to oversee the HIA. A small subgroup project team was responsible for conducting HIA-related tasks. The assessment was conducted in 2005 and 2006.

A shift in focus occurred during the HIA scoping phase due to a major stakeholder policy change driven by political concerns and subsequent media coverage relating to changes in housing densities. Original recommendation plans for feeding into future stages of the regeneration strategy were realigned to the major stakeholder policy drivers, including the Parramatta City Council Residential Development Strategy and the Department of Housing location-based regeneration methodologies. Consideration was also given to incorporating recommendations into Council's Local Environmental Plan due for completion in 2008.

Available qualitative and quantitative data assisted in identifying health impacts and formulating evidence, including:

- the consultant's report for Stage 1 of the Greater Granville Regeneration Plan
- community and stakeholder consultation reports[6–11] based on large-scale community consultations conducted by external consultants (engaged by Parramatta City Council and NSW Department of Housing)
- consultation with HIA Steering Group based on the social determinants of health[12]
- consultation with the local Aboriginal community
- local demographic data and community profile
- literature and existing policy context review,
- local government health data.

A stakeholder focus group and a project team critical review process informed the HIA process evaluation.

Results

The Granville HIA identified potential positive and negative health impacts as shown in Table 1.

Evaluation of the Granville HIA process highlighted some fundamental ingredients for successfully undertaking and completing the HIA. These included the importance of:

- Investment in partnership development through informal learning processes and training, generating a shared understanding of the potential worth of HIA before formally committing to the HIA process.
- Increasing awareness of HIA that facilitated the understanding of stakeholder organisations of how HIA could be incorporated into respective organisational policy and planning frameworks and encouraged non-health stakeholders to encompass a health dimension in community consultations before the formal HIA process.
- A shared understanding of organisational drivers of major HIA partners that ensured clarity of roles and delineated tangible benefits to the participating organisations. Understanding HIA and how it can be an influencing tool is only apparent when core policy and planning drivers are understood.
- Diverse stakeholder representation on the HIA Steering Group which significantly influenced the overall outcomes of the Granville HIA. In particular, representatives from Parramatta City Council such as the Deputy Lord Mayor, senior staff from the Department of Housing and representatives from the local Aboriginal community and local Multicultural Centre who provided links to their communities.
- Agreed resources for allowing commitment to conduct the Granville HIA. Each organisation (Sydney West Area Health Service, Parramatta City Council and NSW Department of Housing) nominated appropriate representatives to attend the HIA training and conduct the HIA. In addition, Sydney West Area Health Service allocated staff and time to lead the process and the NSW Department of Health committed two senior policy officers to assist in the HIA process and tasks.

Granville HIA provides a good example of the positive health influence that the HIA process can produce (Box 1). Future evaluation should consider the full extent of the HIA outcomes relative to the resource investment.

Table 1. Likely health impacts of the Greater Granville regeneration plan identified through the health impact assessment

HIA theme	Likely health impact
Transport, traffic, parking, pedestrian, cycle	Large positive impact if transport services and pedestrian connectivity is improved but negative if improvement decreases access to services and pedestrian connectivity
Business, industry, neighbourhood node	Medium positive impact if stated improvements implemented in nodes increase access to fresh fruit and vegetables, multiple destinations for walking and cycling and local employment opportunities
Community facilities, medical services, child care, schools	Large positive impact, in particular young people when community meeting places are more available and accessible. Large negative impact on small number of children if housing relocation prevents attendance at current school. Large negative impact on low SES community if access to health services is reduced
Landscape, parks, recreation, access to Duck Creek	Large positive impact as improvements indicated are activity friendly. Large positive impact for Aboriginal community when Duck River restored
Urban design and housing	Large positive impact for community if densities are increased. Large positive and negative impacts on public housing tenants dependant on degree of control individuals have over re-housing process; degree of access to medical priority housing; availability of range and quality of residential accommodation

Box 1. Outcomes of the Granville health impact assessment

- The development of recommendations agreed by all stakeholders that underpin positive health outcomes
- Changes to new bus timetables based on community need and access to local destinations by NSW Department of Transport
- Discussions with NSW Department of Housing regarding feasibility of including HIA as a tool for broader policy application at the development phase of housing regeneration
- A formal partnership agreement with key stakeholders to progress the implementation and monitoring of the HIA recommendations
- Successfully influencing major policies drivers that will positively affect community health outcomes and
- The demonstration of HIA strength as a tool with a governance structure that brings community and large organisational stakeholders together on a level playing field.

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A health impact assessment of the Liverpool Hospital redevelopment

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Abstract: This case study describes the process and results of a prospective health impact assessment that was conducted on a major hospital redevelopment in NSW. Undertaking the health impact assessment has raised awareness of the potential intended and unintended consequences of redevelopment in relation to health. It has also enhanced the capacity and commitment for health impact assessment within the Area Health Service.

Liverpool Hospital is the major tertiary referral hospital in the south-west region of Sydney and is part of Sydney South West Area Health Service. As a result of an increased demand for services, together with a rapidly expanding regional population, the need for additional health care beds, ambulatory care areas and supporting infrastructure has been identified. In 2006, the NSW Government announced the allocation of approximately AU$390 million to commence the redevelopment of Liverpool Hospital to meet this need.

Health impact assessments (HIAs) have been conducted on several proposed major developments and plans, including health service redevelopments.[1,2] The redevelopment of the hospital provided an opportunity to conduct a health-focussed impact assessment and to consider the potential consequences of the redevelopment on the health of different population groups.

Methods

A Steering Committee was established in July 2006 to conduct a prospective intermediate HIA on the redevelopment of Liverpool Hospital. The Steering Committee included Sydney South West Area Health Service representatives from each of Population Health, Planning, Capital Works and the Liverpool Hospital, and also from the University of New South Wales' Centre for Health Equity Training, Research & Evaluation (CHETRE) and the Redevelopment Project Team. The project was also accepted as a developmental HIA site as part of the NSW Health HIA Project. This project used the structured and step-wise process of HIA described in the literature.[3] As a result of the screening step of the HIA, the Steering Committee decided to focus the HIA on the construction phase of the redevelopment. This decision was supported by a brief review of the literature and the experiences of other hospital redevelopments where construction was a major issue in terms of impact on health.

The aim of the HIA was to identify the potential positive and negative health impacts of the construction phase. The outcome of the HIA was to develop recommendations for the committee driving the development – the Executive User Group – regarding improvements to health and wellbeing.

In determining the scope for the project, it was decided to conduct the HIA immediately, as the start of the construction phase was scheduled for late 2006 to early 2007. In keeping with this type of HIA, the methods chosen for the identification of impacts were: staff and community consultations, development of a population profile and a literature review. These methods were consistent with the types of evidence for HIA as described by the London Health Observatory.[4]

During the scoping phase, the Steering Committee also decided that the HIA would focus on four key issues for the identification of health impacts. This decision was again based on the available evidence and the prior experiences of other hospital redevelopments. The issues were:

(1) Health and wellbeing of staff and the community
(2) Community and patient safety (non-traffic related)
(3) Increased traffic in area (general and construction traffic) and
(4) Reduced parking for staff, patients and visitors.

To undertake the assessment of impacts, the Steering Committee developed an assessment matrix that included the health impacts, the source of information, affected groups, numbers affected and the consequences and likelihood of the health impact. Consequences and likelihood were assessed using a process similar to the Severity Assessment Code used in conjunction with the NSW Health Incident Management Policy Directive.[5] The matrix also included a section on the possible actions or recommendations regarding that impact. The assessment

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matrix was completed by a smaller working party and provided to the Steering Committee for endorsement.

Results

The Steering Committee used the matrix to prioritise the potential health impacts for the recommendations. Reduced parking was determined as the issue with the highest priority, followed by health and wellbeing of staff, community and patient safety and then increased traffic in the area. Within each of these issues, recommendations were ranked in priority order. For example, recommendations for reduced parking were:

- Develop, implement and evaluate a plan to promote the use of active transport for staff
- Review and explore opportunities to maximise the use of current parking spaces
- Explore and report on the feasibility of a Park-and-Ride system for staff in peak hours
- Initiate the development and implementation of a disability access plan for the construction phase of the redevelopment.

In determining the recommendations, the Steering Committee also acknowledged existing strategies that were in place to reduce potential negative health impacts and to enhance potential positive health impacts during the construction. These existing strategies included:

- An asbestos removal strategy
- The construction of a new access road adjacent to and crossing over the railway line
- The establishment of a Redevelopment Transition Manager's position to facilitate communication
- Various requirements within the Managing Contractor's contract that address health and well being, for example effective safety barriers
- An improved hospital for staff and the local community.

It was also acknowledged that the implementation of the recommendations would occur at different times throughout the construction process, for example, some recommendations such as negotiations with contractors would occur early in the construction phase and others might not be needed until construction was well underway.

A proposed monitoring and evaluation table was developed to determine the impacts of the HIA and progress with the recommendations. The committee highlighted that allocation of resources for the monitoring and evaluation of the HIA over a period of approximately five to eight years – the construction phase of the project – would be necessary. The recommendations were presented to the Executive User Group in March 2007 which accepted the recommendations. The General Manager, Liverpool Hospital, agreed to undertake monitoring and evaluation and report quarterly on progress.

Process evaluation to date has shown that the following elements were crucial to the success of the HIA:

- support and advice from the NSW HIA Project
- the diverse and expert membership of the Steering Committee
- the early definition of the scope of the project
- a project team to coordinate tasks and provide information for decision-making
- engaging stakeholders
- an executive sponsor from the Executive User Group.

Conclusion

We found that the HIA provided evidence to support the recommendations, raised awareness of possible inequity for disadvantaged groups during the construction phase and strengthened the consultation and communication process for the redevelopment. Undertaking this HIA has developed capacity and enhanced commitment within Sydney South West Area Health Service to conduct future HIAs.

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Rapid versus intermediate health impact assessment of foreshore development plans

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Abstract: Objective: To describe the main differences between conducting a rapid health impact assessment (HIA) and an intermediate HIA on foreshore development plans and their feasibility from a health service perspective. **Methods**: A rapid HIA and an intermediate HIA were undertaken on two foreshore development plans. **Results**: The main differences between the two HIAs were in the identification, assessment and decision-making stages of the HIA. **Conclusion**: While the rapid HIA was less resource intensive than the intermediate HIA, there are several factors that affect the feasibility of conducting this type of HIA within a short time period.

It has been reported that the design of urban environments has an effect on factors that influence health such as physical activity, food choices and social connections.[1] Features of the built and natural environment that have been suggested to be associated with physical activity as well as obesity include footpaths and cycle ways; street connectivity and design; land use and density; and transport infrastructure.[2]

Over the past two decades in Australia there has been an increase in the population living in non-metropolitan coastal areas.[3] This trend to the eastern seaboard of NSW is expected to continue over the next 20 years with population increases of over 50% in several coastal townships.[4] The influx of people for lifestyle reasons has an impact on social, economic and environmental factors in coastal areas.[3] Coastal local governments face challenges in providing adequate physical and social infrastructure to meet the increase in the number of residents and visitors.[3]

In the Illawarra region, the Shellharbour local government area (LGA) is predicted to have a 12% increase in population and the Wollongong LGA a 16% increase by 2025.[4] Recently the Shellharbour and Wollongong City Councils developed plans for improving their foreshores for the use of residents and visitors. This article describes the difference between a rapid health impact assessment (HIA) and an intermediate HIA on these development plans, and examines the feasibility of conducting them from a health service perspective.

Methods

South Eastern Sydney and Illawarra Area Health Service conducted HIAs of two development plans: the Shellharbour Foreshore Management Plan and the Wollongong Foreshore Precinct Project. Each HIA was conducted in partnership with the relevant local council. Both plans included a range of initiatives to improve the foreshore areas, such as improving cycle ways, public amenity and open spaces. A Steering Committee with members from the Area Health Service and the relevant council was formed for each HIA. The Committee conducted the five stages of HIA: screening; scoping; identification and assessment of potential health impacts; decision-making and formulating recommendations; and evaluation. Full descriptions of these two foreshore HIAs have been reported elsewhere.[5–7]

Results

Screening and scoping (stages 1 and 2)

The processes involved in screening and scoping for both assessments were similar. An intermediate HIA was conducted on the Shellharbour plan in 2004 and a rapid HIA was conducted on the Wollongong plan in 2006. Both HIAs explored the impact of the initiatives on physical activity and social cohesion and, in addition, the HIA on the Wollongong plan explored access to healthy food.

Identification and assessment of potential health impacts (stage 3)

The intermediate HIA involved the collection of new data and more extensive use of available evidence than for the rapid HIA (Table 1).

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Decision-making and formulating recommendations (stage 4)

The intermediate HIA applied a typology of evidence to weigh the different sources of evidence.[8] The typology of evidence was used to assess how well the sources of evidence answered questions on appropriateness, satisfaction, salience, acceptability, effectiveness and cost-effectiveness of the proposed changes in the plan. Due to time implications, the weighting process was not undertaken for the rapid HIA. The process for ranking initiatives that were likely to have an impact on the health outcomes of interest was similar for both the rapid and intermediate HIA.

The findings from the two HIAs showed that the plans of both councils would have a positive impact on the health of local residents and visitors to the foreshore by increasing physical activity and social cohesion. The HIA on the Wollongong plan also found that the plan would potentially have a small impact on access to healthy food.

Evaluation (stage 5)

The same approaches to process and impact evaluation were undertaken for both HIAs. Process evaluation involved consultation with members of the Steering Committee about the value of conducting an HIA of their foreshore plan. Impact evaluation consisted of follow-up telephone calls to the relevant council at six and 12 months after the completion of the assessment. Both councils considered the HIA process to be beneficial. They found the reports produced useful for applying for funds due to an increasing interest by funding bodies in the health benefits, as well as the economic, benefits associated with these initiatives.

Timeframe and resources

While the time taken for the involvement of each of the Steering Committee members in the HIA was not recorded, the overall length of time to conduct the rapid and intermediate HIAs was three and six months, respectively. Both HIAs had a dedicated full-time project officer. The main difference between the two types of HIA methodologies was the additional time taken by the intermediate HIA in the stages that involved the identification and assessment of potential health impacts, and decision-making. As the rapid HIA followed the intermediate HIA some of the resources developed for the intermediate HIA such as the literature review informed the rapid HIA.

Discussion and conclusion

The main advantage of conducting an intermediate HIA compared to a rapid HIA is that the longer time period allows for greater collaboration between the health service and the council, which can enhance these organisations' understanding of each other's business. An intermediate HIA usually involves collecting new data that can provide a greater insight into the effect that the plan can have on specific aspects of health within the context being assessed. However, the short time period of a rapid HIA has the potential to align more closely with local government planning timeframes.

While the rapid HIA is quicker and has fewer resource implications than the intermediate HIA, from the authors' experience a rapid HIA is only feasible if:

- the health service has a relationship with the proponent of the plan or the ability to form one in a short time-frame
- there is management support from both the health service and the proponent of the plan
- at least one member on the steering committee has experience in conducting a HIA
- relevant data are available in an accessible form, without the need to collect new data
- a literature review on the health determinants and outcomes of interest is available.

As local governments have an important role in creating environments that are supportive of health,[9] the HIA

Table 1. Comparison of the types of information used for the intermediate health impact assessment of the Shellharbour Foreshore Management Plan (2004) and rapid health impact assessment of the Wollongong Foreshore Precinct Project (2006)

Types of information	Intermediate HIA	Rapid HIA
Community profile	2001 Australian Census Population and Housing data	2001 Australian Census Population and Housing data
Health outcomes interest	NSW Health data on physical activity and social cohesion	NSW Health data on physical activity, social cohesion and access to healthy food
Policy review	State and local health policy documents	–
Literature review	Review of the relationship between the environment and physical activity and social cohesion	Information on the access to healthy food was added to the literature review done for the intermediate HIA
Recreational environmental audit	Conducted an audit of the existing facilities for recreation opportunities	–
Key informant interviews	Interviews with people who were familiar with the plan and represented different groups	–

process is a useful tool for ensuring that the potential impact of foreshore development plans on the health of residents and visitors is considered before the implementation of the plan. Health services need to be aware of the different types of HIA processes and their associated resource requirements before undertaking an HIA.

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Health and social impact assessment of the South East Queensland Regional Plan (2005–2026)

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Abstract: A health and social impact assessment of the South East Queensland Regional Plan was undertaken in 2005 (Queensland Government, 2005). It is one of few attempts nationally and globally to apply health and social impact assessment to a regional planning process. The assessment methodology builds on existing evidence-based research, methodologies and the combined professional experience of both health and social impact assessment practices in Queensland. The approach adds further strength and rigour to planning strategies to enhance the health and well-being of communities. The way the South East Queensland Regional Plan is implemented, and how the plan influences access to jobs, education, affordable housing and social infrastructure, and the achievement of social inclusion and connectedness within communities, will be central to future health and well-being of people in South East Queensland.

In October 2004, the Draft South East Queensland Regional Plan was released and circulated for comment. It proposed a new framework for legislated management of urban growth in South East Queensland, the population of which is expected to grow by 1.05 million people by 2026. Health and social planners took the opportunity to proactively progress the inclusion of health and well-being as a consideration in future planning. Queensland Health's Population Health Branch had been an active proponent of health impact assessment (HIA),[1,2] while the Department of Communities and local government agencies used social impact assessment.

The health and social impact assessment merged both the HIA and social impact assessment methodologies into a single, combined impact assessment, to enable a broader understanding of the potential impacts of the proposed South East Queensland Regional Plan[3] on health and well-being. It was a collaborative effort between Queensland Health, the Department of Communities, the Office of Urban Management and representatives from local government community and social planners, and it was led by a social planning consultant.

The use of the combined methodology to assess the potential impacts of the South East Queensland Regional Plan allowed input into the Regional Plan while it was still in its draft stage. This collaboration also provided a higher profile for consideration of factors[4–6] which impact either positively or negatively on health and well-being outcomes, and this helped to inform the Plan to support and promote the future health and well-being of South East Queensland population.

Key objectives achieved by the project were to:

- ensure the South East Queensland Regional Plan included consideration of health and well-being in the Region
- identify risks associated with the implementation of the Plan
- identify strategies that would enhance health and well-being as the South East Queensland population increased and the plan was implemented
- develop tools that supported the ongoing consideration of health and well-being in planning activities, both in South East Queensland and other locations
- trial combining health and social impact assessment methodologies and consider its appropriateness for future planning activities,
- inform the planning of health services in South East Queensland to meet the needs of the anticipated population growth.

The approach

Health and social well-being have much in common, as indicated in the World Health Organization's definition of health:[7]

> Health is a state of complete physical, mental and social wellbeing and not merely the absence of disease.

Health status is influenced by a complex interaction of social, economic, environmental, behavioural and genetic factors. A safe environment, adequate income, meaningful social roles, secure housing, higher levels of education and social support are all associated with better health and well-being.

Both HIA and social impact assessment adopt similar methodologies to enable the benefits of an initiative to be enhanced and potential negative impacts to be prevented or minimised at the design stage. Both processes culminate in proposal modifications, and a management plan designed to enhance, reduce or avoid identified risks. In this project, both impact assessments benefited from merging their methodologies.

The project commenced with a broad scoping of issues through a rapid impact assessment workshop attended by a cross section of health and social specialists. This process enabled some immediate input into the development of the Draft Regional Plan. The issues identified were subsequently investigated in a more detailed comprehensive impact assessment, undertaken after the Plan was released for public consultation.

As time and resourcing did not allow community engagement, a heavy reliance was placed on available information from experienced professionals and academics for the assessment.

Findings

The combined assessment reported findings at a broad level, reflecting the broad nature of the strategies in the Draft South East Queensland Regional Plan. It concluded that the specific impacts arising from the Regional Plan were difficult to confirm and would depend on how its general intent (eg for strong communities and greater accessibility) was to be implemented. It was this that would determine the outcomes in terms of impacting on access to jobs, education, affordable housing, social infrastructure and social connectedness.

Income is one of the central determinants of health and well-being, with the equitable distribution of economic development and access to jobs in the region of importance. Achievement of the Regional Plan's aspirations for the distribution of jobs at key locations within the region is important to community well-being.

Housing affordability has an important impact on the disposable income for households, with the supply of affordable housing identified as an issue in the region. Existing patterns of social polarisation, where lower income households have gravitated to outer urban areas, highlight the need to address affordable housing supply across the region. The impact assessment identified the potential impact of transit-oriented development on existing affordable housing stock, especially where located in older urban areas.

Urban consolidation, and in particular transit-oriented developments, were considered to improve outcomes for accessibility and provide an opportunity to promote healthy and active lifestyles through improved planning supporting walking and cycling.

Social support and relationships, and meaningful participation in society, are linked to both individual and community health. With the high levels of regional population growth expected, the importance of supporting the formation of these roles and relationships through investment in such infrastructure as community facilities, community services and community development programs was highlighted.

Further challenges were identified in the significant changes that can be expected in communities targeted for growth, in particular communities in the Western corridor and infill sites identified for transit-oriented developments. Community participation in these processes of change was identified as an important vehicle through which to help manage both positive and negative impacts of change on a community's sense of identity and social cohesion.

The study identified the need for special attention to the implications of an ageing population in South East Queensland, particularly in communities with concentrated ageing populations such as coastal and rural areas. Priorities included planning for the high proportion of older people living alone, acknowledging the related risks of social isolation. The needs of ageing among culturally and linguistically diverse people are also poorly understood.

Other issues included the need to manage potential environmental health impacts associated with land-use conflicts (eg urban and rural uses) within the urban foot-

Table 1. Tools developed in the combined health and social impact assessment of the South East Queensland Regional Plan

TOOL 1	Health, well-being and the urban environment – a summary of known relationships
TOOL 2	A baseline report of existing health and social conditions in South East Queensland
TOOL 3	Analysis of the health and social impacts of the South East Queensland Regional Plan
TOOL 4	An outline of health and well-being considerations for planning instruments under the Regional Plan
TOOL 5	An outline of considerations for health and social impact assessment of transport infrastructure proposals

print during the transition of some of these areas to urbanisation. The impacts of total water cycle management systems, while not well understood, were thought to include equity impacts associated with cost shifting, as well as ensuring capacity for individuals to manage new water collection systems safely and effectively.

Outputs

The health and social impact assessment captured the opportunity to resource practitioners charged with the responsibility of implementing the Regional Plan with a series of tools that provide practical guidance on how to integrate health and social considerations in their work. The tools target a range of regional planning processes, including the preparation of Local Growth Management Strategies and Structure Plans, as well as more generalised planning processes.

The tools developed can be accessed at the website address provided at the end of this article and are listed in Table 1.

As a result of the project, significant relationships were also developed between several of the stakeholders including Queensland Health, the Department of Communities, the Office of Urban Management and local government. Areas of common interest in urban development and management were discovered through the project, resulting in the strengthened understanding and ability to work together for the agencies involved. Additional information on the health and social impact assessment for South East Queensland Regional Plan can be found at: www.health.qld.gov.au/partners/seq/seq_plan.asp.

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Lessons in applying health impact assessment to regeneration schemes: the Victorian experience

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Abstract: The value of health impact assessment (HIA) to sectors outside the health domain is increasingly being recognised. A Victorian study explored the application of HIA within a regeneration context. What emerged is a complex analysis of the practical dimensions of applying HIA in this context.

In recent years, widespread national and international attention has been focussed on the role of health impact assessment (HIA) as an approach to identify and analyse the potential and often unanticipated health impacts of proposals on the health and the distribution of those effects within the population.[1,2] Increasingly, the value of HIA to sectors outside the health domain is being recognised, particularly where considerations of health are not traditionally a primary concern. The application of HIA to regeneration and neighbourhood renewal type initiatives is one such policy platform in which HIA has been used extensively in the United Kingdom. Urban regeneration, as a policy platform, has gained prominence in the UK since the election of the New Labour government in 1997.[3] Initiatives such as the New Deal for Communities, Healthy Living Centres and the Single Regeneration Budget have been established as a means to address health and social inequalities, social exclusion and deprivation.[3] The application of a HIA approach to such initiatives is particularly pertinent, where addressing inequalities in health is sustained through action often in non-health sector areas such as transport, crime and safety and education.

Internationally, the application of HIA to urban settings, particularly regeneration schemes and the recognition of its role as a decision-making tool within this context, is longstanding. In Australia, however, there have been few studies on HIA and little attention has been directed towards the role that HIA can play within decision-making that occurs at the community level within regeneration schemes. This article describes several of the findings from one project undertaken in Victoria. It draws on the findings of one component of a study undertaken for a PhD on the application of HIA to regeneration schemes and the potential for HIA to address issues associated with social exclusion.

The study

In 2003, a collaborative partnership between the Victorian Department of Human Services and Deakin University was established to provide a vehicle for exploring the application of HIA to strategy development processes within Neighbourhood Renewal. The key focus of this study was to explore how HIA could best be positioned and applied within Neighbourhood Renewal in Victoria by comparing and contrasting its use within two different sites. The overall study also involved extensive overseas consultations with key informants who were working on the application of HIA to regeneration initiatives and a comprehensive review of the literature, each of which informed the approach taken in Victoria.

It is not within the scope of this paper to provide a detailed description of the methods used to integrate HIA into the strategy development processes of each Neighbourhood Renewal action group. However, a participatory rapid HIA process, including a stakeholder workshop, was used to assist each action group in their decision-making processes by adding evidence of the potential health impact of one action over another. The expectations of HIA were threefold: (i) that HIA would make the decision-making process more transparent; (ii) that it would provide opportunity for community input so as to enhance the likelihood of decisions being made in alignment with community needs; and (iii) that it would provide an evidence base to direct priority development and action, particularly in relation to the strategies developed by the action group.

Neighbourhood renewal – the Victorian approach

A core objective for the Victorian Government's Neighbourhood Renewal Strategy is to '…tackle local sources of health inequality.'[4] Neighbourhood Renewal is the Government's priority response to place-based inequality and it seeks to challenge the underlying determinants of health in order to improve health and well-being, create more cohesive communities and reduce disadvantage.[5] Given this focus, it is based on highly participatory governance structures so that people (ie local residents, business and service providers) can have a say in decision-making about issues of importance to them and their community.[5]

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Box 1. Three lessons for the successful application of health impact assessment from the health impact assessment of the Victorian Government's Neighbourhood Renewal Strategy

1. Levels of support for, and understanding of, HIA are crucial when it is used in a Neighbourhood Renewal context. Staff who are in a position to offer leadership and guidance to the resident-based action groups must understand what HIA is, why it is being used and the outcomes desired. If it is not present there are serious implications for how HIA is embraced, facilitated and positioned within the decision-making processes of the community-level action group. Where knowledge of HIA was limited among Neighbourhood Renewal staff providing support to the action groups, it was difficult to position and there were ongoing problems linked to the outcomes it generated in the strategy development processes.

2. Developing rapport and trust between the HIA practitioner, the Neighbourhood Renewal staff and the action group members was critical to the successful application of HIA. Developing an understanding of the mechanics of the group and issues of importance to group members was not only beneficial to the process of HIA (eg screening, scoping, impact identification) but assisted in dissolving potential power differentials between people who understood about HIA and those who did not. Relationships based on integrity and a willingness to work with local residents was a key factor in the successful application of HIA and in achieving an impact on the decision-making processes. In addition, the capacity and readiness of action group members to engage with the processes of HIA was also important in determining the degree to which HIA was effective.

3. The quality and effectiveness of HIA is very much dependent on **the skills of the designated HIA practitioner** or team of people involved and the resources allocated (including time, skill level and funding). A sound understanding of HIA and the capacity to facilitate the entire process from screening to monitoring and evaluation was important in instilling a sense of direction and confidence among action group members.

Resident involvement within Neighbourhood Renewal principally occurs in two distinct ways: (i) as a member of the steering committee; and (ii) as a member of a resident-based action group. These local action groups provide a structure for resident involvement and leadership in developing and implementing strategies for action which will address issues that are identified as concerns within the community. In the absence of any other prescribed approaches or initiatives to attend to the factors that influence health, HIA is one possible approach. Research has shown that HIA can be used to strengthen the strategy development processes, particularly at the local level where little or no attention to health concerns is evident.[6–8]

Considering context in applying HIA to regeneration

Three lessons can be taken from this work. These factors, relate to contextual factors that require careful consideration if HIA is to be successfully applied to Neighbourhood Renewal type schemes. While these are facilitators for community-based HIA, they can equally act as barriers if they are not carefully managed. The three factors are: awareness and understanding of HIA; trust and rapport; and resourcing and capacity building (Box 1).

Conclusion

The successful practical application of HIA within neighbourhood renewal or regeneration-type initiatives was influenced by a series of factors. If one of the goals of such schemes is to improve health outcomes, then it is crucial that we plan for health to be the focus within the whole scheme. One way of doing this is to use HIA. For it to be effective though we must: learn the lessons from its application elsewhere; modify the processes to be effective in the Australian decision-making context; and attend to the detail required to make it work. It is therefore vital that training, development and support underpin the application of HIA so that it can be successful in focussing on the determinants of health and can support the achievements of the regeneration scheme.

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Greater Christchurch Draft Urban Development Strategy 2005

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Abstract: The first health impact assessment (HIA) performed on a high level local government policy in New Zealand was undertaken on the Greater Christchurch Urban Development Strategy in 2005. This report describes its development and implementation and the results from the process evaluation including some recommendations made in the assessment. We concluded that HIA is a useful tool for local government policy analysts and we recommend it.

Since it was established in 2001, the New Zealand Public Health Advisory Committee has been promoting the use of health impact assessment (HIA) for local and central government as a way to ensure that health and well-being are considered during the development of public policy. This promotion has included publishing *A Guide to Health Impact Assessment: A Policy Tool for New Zealand*,[1] evaluating the experience of HIA and subsidising the costs of training about 300 people across a range of organisations. The following is a brief summary of our experience of undertaking an HIA on the Greater Christchurch Urban Development Strategy. A full description of this HIA has been published elsewhere.[2]

In April 2005, the community of Greater Christchurch was asked to choose one of the following four options for how future urban growth might proceed: business as usual with most growth occurring in green-field development; concentration with growth in Christchurch City and a few other larger towns in the district; consolidation with balanced growth within existing areas and some green-field areas; and dispersal which allowed for ongoing urban sprawl. More than two thirds of over 3250 responders chose the concentration option where growth is concentrated in current urban areas. The community was also clear about the need to protect water quality, the environment, heritage and the character of communities as well as to provide more transport options.

How the HIA was conducted

A steering committee with representatives from Christchurch City Council and the Public Health Unit was formed to guide the development of the HIA. A screening and scoping seminar attended by over 30 people from local government, the Public Health Unit, private contractors and academics agreed on the following health determinants to be examined by the HIA:

- air quality
- water quality
- waste management
- social connectedness
- housing
- transport.

A parallel work stream focussed on engaging with Ngai Tahu who are Tangata Whenua, the local Maori tribe. Te Runanga o Ngai Tahu (representative body) works on behalf of the tribe with local government to promote their interests and ensure their aspirations are met. A working group of staff from Christchurch City Council, including a member of the Urban Development Strategy team, and the Public Health Unit worked together to advance the HIA. By the time it was agreed to progress with the HIA, the results from the community consultation were available and it was agreed that the focus should be on comparing the options of business as usual with a concentration option.

Seven workshops were held to obtain key informant perspectives on air and water quality, social connectedness and waste management. Literature reviews were also completed for all determinants. Time constraints meant that the work on housing and transport was limited to the literature review. A separate workshop was held for local Maori and a final review workshop provided comments on the preliminary results to all participants. The recommendations of the HIA were presented to the Urban Forum (the Governance steering group for the Urban Development Strategy) in December 2005 and the final report was published in April 2006.[3]

Process evaluation

A public health physician conducted an evaluation of the HIA process from the outset of the project. Three main themes emerged from the evaluation. First, there was overwhelming support for the process by all those

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involved. Second, there was strong support for the intersectoral and multidisciplinary nature of the process. This helped develop a common language between participants and was typified in a quote by one respondent: 'It was great to see planners sitting there side by side with us health people. I think it helped them understand more about the big picture of public health and that they're part of it.' The third theme concerned resourcing, where constraints on time, money and professional capacity (public health staff were diverted to an outbreak of Legionnaires' disease) limited what could be achieved.

Impact evaluation

A result is that the Urban Development Strategy[4] has a dedicated section on health and well-being that would not otherwise have been included. This section acknowledges the importance of the social and environmental determinants of health and urban form to community well-being. The HIA was successful in increasing participation by Maori in governance and implementation of the Strategy. Recommendations were made for each of the health determinants assessed. Of note was the convergence between many of these recommendations (see Table 1).

The overarching recommendation that emerged from each workshop was the need for local intersectoral collaboration. The value of working with others from different disciplines across organisations was seen as a great strength of the HIA process. Another result has been the employment of a public health medicine registrar at Christchurch City Council to bring an HIA perspective to the Council's policy-making process. The Council has committed to incorporating HIA into its standard policy cycle.

A formal evaluation of the impact of the HIA on the Urban Development Strategy is planned.

Discussion

Undertaking an HIA on a policy of this scope and nature was a first in New Zealand. Support for the process was very high from participants and from the Urban Development Strategy Forum members. An informal evaluation on its impact suggests that significant outcomes have been realised, particularly those resulting in changes to the Strategy that we believe are positive for public health.

A significant contribution of this HIA was the support it provided to focus on the drivers for carrying out an urban development strategy. Prior to the HIA the focus was on infrastructure planning, particularly transport and where urban growth could be placed within Greater Christchurch after considering constraints such as flooding, water supply catchment and airport noise contours. The HIA, by concentrating on health and reducing inequalities in health and social outcomes, directed the focus of the Urban Development Strategy more to quality-of-life outcomes. The HIA has also helped to highlight the significance of the statutory and collective responsibilities relating to health and social outcomes within the principal planning legislation.

Finally, the HIA has identified that the Strategy has a role to deliver on health and social outcomes by informing both local and central government about housing, the importance of urban form in supporting walking and cycling and social connectedness, and, of course, to close gaps in health inequalities.

Conclusion and recommendations

This HIA was a pilot process to help assess its utility as a practical tool. Process evaluation of this HIA showed that participants clearly recognised its limitations in terms of resources (budget, staff and time) but were still overwhelmingly positive about their involvement in the

Table 1. Recommendations made in the health impact assessment for each health determinant assessed for the Greater Christchurch Urban Development Strategy

Health determinant				
Air quality	**Social connectedness**	**Transport**	**Housing**	**Water quality**
Sponsor public and active transport.	Ensure an efficient public transport system.	Actively promote active transport. Promote use of public transport.		
Sponsor energy efficient housing.	Prioritise highly energy efficient and sustainable low cost housing.		Strengthen building codes locally to build quality housing stock that is highly energy efficient.	
Develop cross-sectoral collaborative project based working groups.	Involve residents in the design of new communities.		New housing design and retrofitting of older housing should be undertaken in collaborative partnerships with all stakeholders including residents.	Integrate water management with urban planning. Water resource planning and management should be supported by asteering group including Ngai Tahu, public and private sectors.

process. In retrospect, there were two key outcomes from the process:

- Participants were able to interact with other agencies face-to-face (working intersectorally became a reality) and helped develop a 'new language' that focussed participants on how their roles and decisions influenced health outcomes and
- The HIA helped put health and social well-being to the forefront of a major policy document on urban planning.

The significance of these developments should not be underestimated. The recognition by different sectors that frequently their goals are the same or similar despite different methods of working and different languages (eg local government speaks of 'well-being' whereas public health practitioners speak of 'health') was a revelation for many participants.

Our experience strongly supports the use of HIA in local government policy cycles. We would recommend that other local government bodies consider applying HIA within their decision-making processes.

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Health impact assessments in London: assessing the London Mayoral strategies

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Abstract: Between 2001 and 2003 the London Health Commission undertook health impact assessments (HIAs) on a series of strategies developed by the Greater London Authority and the Mayor of London. The HIAs were rapid, each involving a literature review and a participant workshop. In all cases the reports made a series of recommendations that were given to the Mayor. The HIAs led to changes and ensured that health and health inequalities were given due consideration as part of the strategy development process.

The Mayor of London has responsibility for the development of several statutory strategies, including Economic Development, Transport, Spatial Development, Air Quality, Biodiversity, Municipal Waste Management, Ambient Noise and Culture. The London Health Commission undertook health impact assessments (HIAs) on each of the draft strategies and on several other non-statutory draft strategies the Mayor developed between 2001 and 2003. The process ensured that strategy proposals endeavoured to reduce health inequalities, mitigate negative health outcomes and increase positive health outcomes.

The HIAs were undertaken during the period in which the strategies were being scrutinised by the Greater London Assembly (the elected representatives of the Greater London Authority) before being released for public consultation. The HIA report formed part of the feedback that the Mayor and the strategy development teams considered before the document was circulated for consultation. The HIA was usually completed and the report submitted to the Mayor in between six and eight weeks, consequently the HIAs were rapid assessments.

Screening

There was no screening process as the HIAs had been agreed on by the Mayor and all of the strategies dealt with issues that could be considered determinants of health.

The steering group for each of the HIAs included representatives from a range of partner agencies with an interest in HIA, in health inequalities and in health outcomes. This included the London Health Commission, the London National Health Service Executive (now the Regional Public Health Group), the Greater London Authority and the London Health Observatory. The steering group also included the consultant responsible for the writing of the HIA report and, in some cases, members of the strategy development team.

For each HIA there were a number of stages. These were scoping, a literature review of the evidence, a stakeholder workshop, preparation of a draft report, presentation of the draft to the London Health Commission for review, then submission of the final report and recommendations to the Mayor and the Greater London Authority officers.

Scoping

Excepting the HIA for the London Plan, where a larger meeting was held, the steering group was responsible for scoping the HIA. The group met when the strategy was released to decide what should be addressed during the HIA and to develop tools for use in the stakeholder workshop. A public health specialist with knowledge of the health evidence related to the strategy area was engaged to undertake a literature review and to develop material to be presented to the participants of the workshop.

For each workshop, the steering group developed a workshop agenda and, in most cases, in partnership with the strategy development team, organised an invitation list. The agenda for the workshop focussed on specific areas and the literature review was structured to support participants in their discussions. Invitees included public health practitioners, local government employees, industry representatives and a range of interest groups and non-government organisations.

Appraisal workshops

The majority of the rapid appraisal workshops were half-day events. Each workshop began with a short introduction to the strategy and a presentation about the available evidence related to the health impacts that were to be considered. It was important to summarise the evidence[1–3] as well as the main themes of the strategy to ensure that the workshop attendees had enough information to participate. Most of the workshop was spent in facilitated small groups, looking at specific areas of the strategy. During

the early HIAs, the facilitator led the group through a series of general questions. As the HIA process developed, more detailed questions specifically related to the strategy were asked, enabling greater emphasis on health outcomes and health inequalities.

The report

After the workshop an HIA report was drafted using evidence from the workshop and the literature review. It was circulated to all the workshop participants for comment. The draft report and any comments received were then scrutinised by the steering group and the draft finalised. The report then went to the London Health Commission for debate and ratification and was submitted to the Mayor and the strategy development team.

The strategy development team was responsible for incorporating the recommendations and reporting back to the London Health Commission. Changes were made to the strategies as a result of recommendations (see Table 1 for examples[4]). The reporting to the London Health Commission was achieved through a presentation by the strategy development team explaining which recommendations had been accepted and, where recommendations had not been accepted, the reasons they had not been included in the redrafted version used for public consultation.

Discussion

Although the main reason for using the rapid HIA approach was the amount of time available for the process, there were advantages to using this method. It ensured that the HIA was part of the policy-making process[5] but enabled the steering group to develop a timetable and work towards a completion date before the document went for public consultation. The workshops were scheduled and invitations sent out early to ensure that the maximum number of people invited were able to participate. Interest in the process grew as it became clear that the HIAs were influencing the strategies and for later HIAs there were, generally, greater numbers in attendance at the workshop. In addition, the use of published evidence to support recommendations was important, although the Greater London Authority was also interested in stakeholder opinion. In some cases, recommendations were made solely on the basis of stakeholder evidence due to a lack of evidence in the literature review. These issues have been discussed elsewhere.[6]

A disadvantage of holding only one workshop for each HIA and not undertaking interviews with stakeholders was that there was no opportunity for those unable to attend the workshop to participate in the process. This may have led to evidence and expert opinion not being considered. The steering group was also aware that there was no public involvement in the process. However, given the timing and resource issues it was not possible for there to be meaningful involvement and it was decided that stakeholder involvement would be more appropriate.[7]

The London Health Commission commissioned an evaluation of the HIAs undertaken, which found that the use of HIA did have an impact on incorporating health considerations into the strategies.[8]

Table 1. Examples of the changes made to some of the London Mayoral strategies as a result of a health impact assessment

Strategy	Changes made
Transport	• Increased emphasis on sustainable forms of transport
	• Addition of a proposal to ensure that London Transport addresses the transport requirements of groups with specific needs
	• Increased emphasis on developing relationships with local government to ensure safety for pedestrians
	• Development of a walking and cycling plan for London
Economic development	• Inclusion of a clear statement about the link between economic development and health
	• Promoting the health of Londoners' incorporated into a new charter objective within the strategy
	• Revision of a charter objective promoting social inclusion and renewal for all of London's communities
	• Commitment by the London Development Agency to encourage and support breakfast clubs in London schools.
Biodiverstiy	• Addition of a proposal to work towards ensuring that Londoners are aware of the capital's green spaces and waterways
	• Recognition of the need to address perceived safety issues to encourage use of green spaces.
	• Promotion of environmental education.

Source: Bowen C. HIA and policy development in London: using HIA as a tool to integrate health considerations into strategy. In: Kemm J, Parry J, Palmer S, editors. *Health Impact Assessment*. Oxford: Oxford University Press, 2004.

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An overview of the regulatory planning system in New South Wales: identifying points of intervention for health impact assessment and consideration of health impacts

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Abstract: The experience of health impact assessment (HIA) in NSW has shown that it is possible to incorporate considerations of health impacts into decision-making concerning urban planning. In NSW, the *Environmental Planning and Assessment Act 1979* is the regulatory framework governing urban planning. This legislative system provides opportunities for HIA and the consideration of health impacts as part of developing plans, policies and development proposals within NSW.

The benefits and promises of health impact assessment (HIA) for urban planning have been clearly articulated throughout this issue of the *Bulletin* and in the broader international literature. HIA can incorporate the consideration of health, the wider determinants of health and health inequity within urban planning decision-making,[1,2] while providing opportunities for collaborative work between health and other sectors, including urban planning.[3–6]

Land-use planning and development in NSW is governed by the *Environmental Planning and Assessment Act 1979*.[7] The Act provides opportunities for the use and development of HIA as an urban planning tool and the consideration of health impacts within the planning and development system. Table 1 outlines the objectives of the Act which have direct links to the wider determinants of health.[3,8] However, this important statutory influence on health is largely unknown to health professionals.

This article provides an overview of the planning system, focussing on statutory plan-making and the development assessment process. The purpose is to provide health professionals with a summary of the complex regulatory framework which governs urban planning in NSW, suggesting points of intervention for HIA within this system. The discussion will assist health professionals to better communicate with their planning colleagues in proposing the effective use of HIA in all planning decisions – from broad plans to the determination of site-specific development applications. It encourages them to consider adverse health impacts as well as positively providing for the well-being of the community.

The two levels of the planning system: plan-making and development assessment

The Act covers two principal areas of interest for HIA, plan-making and development applications. Both provide valuable opportunities to encourage consideration of health impacts and the use of HIA.

Plan-making

Plan-making is covered by Part 3 of the Act through statutory and non-statutory environmental planning instruments (Figure 1), which link directly to health and well-being through their provisions. These instruments include: protecting the environment; controlling development; reserving land for public use; the provision, maintenance and retention of affordable housing; controlling advertising; and protecting and conserving ecological communities. An additional opportunity presents itself with respect to 'such other matters as are authorised or required to be included in the environmental planning instrument by this or any other Act'.[7] Accordingly, considerations under the *NSW Public Health Act 1991* could be taken into account at this point.

Statutory environmental planning instruments

There are three statutory environmental planning instruments: (1) State Environmental Planning Policies, (2) Regional Environmental Plans and (3) Local Environmental Plans.

(1) The first of these, State Environmental Planning Policies, deals with issues of significance to the state and people of NSW and are overseen by the NSW State Government. There are over 70 of these, many of which have direct and indirect links to health.[9]

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Table 1. Objectives of the *NSW Environmental Planning and Assessment Act 1979, No. 203*

The objectives of this Act are:

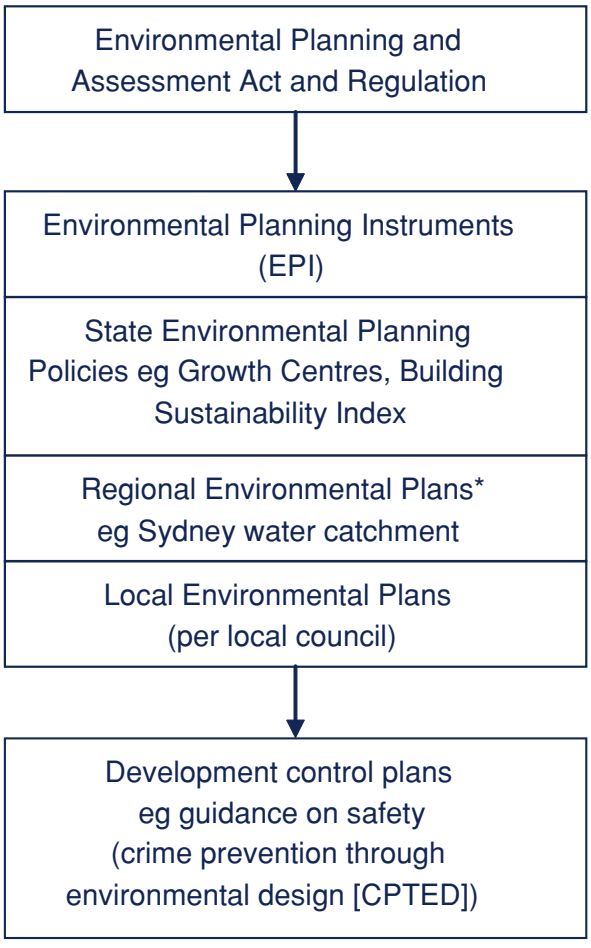
(a) to encourage:

- (i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment
- (ii) the promotion and co-ordination of the orderly and economic use and development of land
- (iii) the protection, provision and co-ordination of communication and utility services
- (iv) the provision of land for public purposes
- (v) the provision and co-ordination of community services and facilities
- (vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats
- (vii) ecologically sustainable development and
- (viii) the provision and maintenance of affordable housing

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State and

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

Source: *NSW Government. Environmental Planning and Assessment Act 1979 No. 203.*



**Regional Environmental Plans are increasingly being superseded by Regional Strategies.*
Source: Dr Danny Wiggins, personal communications.

Figure 1. Part 3 of the NSW *Environmental Planning and Assessment Act 1979*.

(2) At the next level, Regional Environmental Plans are also overseen by the NSW State Government. These plans may also incorporate health-related issues, providing detailed regional land-use planning across issues such as urban growth, commercial centres, extractive industries, recreational needs, rural lands, and heritage and conservation.[10]

(3) Local Environmental Plans are statutory instruments overseen by the NSW State Government but are developed and implemented by local government. They guide zoning of land use and development standards. Zoning establishes which types of land use are permitted or prohibited, eg a supermarket may be permitted in a commercial zone but not in a residential zone. Development standards control aspects of developments such as regulating the height of buildings or the amount of open space to be provided. At the time of writing, councils are revising their Local Environmental Plans using a mandated State Government standard template.[11] This will provide more direct opportunities through creative interpretation of the legislation for health impacts to be incorporated at the local level.

Non-statutory environmental planning guidance documents

Local Environmental Plans are directly linked to other non-statutory (and therefore more flexible) local plan-making processes. Of specific importance to health are Development Control Plans. These plans support and supplement controls established in the Local Environmental Plans by way of more detailed planning and design guidelines that must be taken into account by a development. For example, a Local Environmental Plan will specify

what uses are permitted through zoning (eg town houses in a residential zone). In turn the Local Environmental Plan can link to a Development Control Plan which guides the way this development is carried out and what should be in place when the development occurs (eg cycleway to encourage physical activity).[12] Development Control Plans may also be related to other plans such as a 'place plan' to establish sites for community centres in a residential area which can build social capital. At the same time, Development Control Plans can link to Section 94 of the Act (Contribution towards provision or improvement of amenities or services), which requires developers to contribute additional facilities and services as a result of their development (eg the provision of public parkland).

Another important non-statutory planning document created by the State Government, and replacing Regional Environmental Plans, are Regional Strategies. While not statutory instruments, they are policy documents providing ministerial direction which Local Environmental Plans are required to follow.[10] Therefore improved consideration of health impacts within Regional Strategies could have a wide-reaching influence on health and well-being (see Wells et al. in this issue).

Development assessments

Development assessments, the consideration of specific proposals for development, are covered by Part 3A and Part 4 of the Act. Part 3A is concerned with developments defined as 'Major Projects' by the Minister for Planning, and their assessment is overseen by State Government.[13,14] Part 4, which relates to other developments, is managed by local government (guidance is available from each local council). For all developments in both Parts 3A and Part 4, there are three stages in the assessment process at which consideration of health, or use of HIA, can be inserted: (1) consultation before lodgement of an application; (2) the lodgement of an application; and (3) the assessment of the application.

(1) Consultation before lodgement of an application

A proponent will consult either the Department of Planning (Part 3A applications) or local government (Part 4). At this stage, there are opportunities for health to engage with both the Department of Planning and individual local councils to encourage the consideration of health at this early stage of the process. For Part 3A applications, the Department of Planning provides information that must be included in the submission of an environmental assessment. For Part 4, individual local councils provide guideline documents for lodgement requirements.

(2) Lodgement of an application

This stage, when the assessment is lodged (for both Part 3a and 4), provides further opportunities for health and well-being to inform the initial acceptance or rejection of the assessment by the Department of Planning or local council. For Part 3A, following consultation with relevant agencies (including the Department of Health), the Director General of the Department of Planning may request additional information or refuse to exhibit the environmental assessment. For Part 4, local councils may reject applications that are unclear in their intentions or provide insufficient information; or councils may request additional information.

(3) Assessment of the application

For Part 3A, the Director General will consult with relevant agencies before finalising an assessment report. This report is then submitted to the Minister for a determination; the project can be rejected or approved, with conditions considered appropriate.

For Part 4, local governments assess applications using criteria laid out in Section 79c of the Act. Section 79c contains many avenues of influence for health, through five considerations. The first considerations are environmental planning instruments (State Environmental Planning Policies, Regional Environmental Plans, Local Environmental Plans, Regional Strategies) and Development Control Plans. Second considerations are any potential impacts of the development, including environmental, social and economic. The third considerations involve the suitability of the site for the development (eg any natural characteristics, ease of access and availability of services). The fourth considerations entail submissions made in accordance with the Act (eg from neighbours, other bodies such as advocacy agencies). The fifth considerations encompass the public interest, including health and well-being.

Conclusion

This overview of the regulatory planning system in NSW provides an insight into the consideration of health and health impacts in planning. However, a word of warning is required. Despite the importance of regulation governing the work of those involved in planning, research in Australia and overseas has indicated that regulations alone are insufficient to fully address health impacts.[15,16] A more strategic and creative approach is required that combines regulation with proactive strategies by the health sector to foster collaboration and trust.

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Building health impact assessment capacity as a lever for healthy public policy in urban planning

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Abstract: Building capacity to improve health through applying health impact assessment (HIA) increases the range of people, organisations and communities who are able to address health problems and, in particular, the problems that arise out of social inequity and social exclusion. To achieve this, a range of strategies is required across the areas of organisational development, workforce development, resource allocation, leadership and partnerships. A conceptual framework to guide understanding of capacity building evolved during a three-year capacity building project that supported the implementation of HIA. This is also applicable to the broader agenda of healthy public policy.

The NSW Health and Equity Statement[1] recommended that processes should be developed for health impact assessment (HIA) as one set of strategies to ensure that proposed government policies, programs and projects would improve health and address health inequalities.[2] In order to implement the Health and Equity policy statement, capacity to undertake HIA was required. Central to any capacity building approach is a clear perspective of whose capacity is to be built and the purpose of the capacity. This paper will describe the development of capacity building theory,[3] which is needed to embed HIA as a viable tool for intersectoral action to improve considerations of health in urban planning.

That HIA is an effective tool for improving health in urban environments became apparent during a three-year project to build the capacity for HIA in NSW. To be effective, however, HIA needed to be embedded in both the health system and agencies other than health. Studies from other countries report difficulties in implementing healthy public policy and institutionalising HIA in a form that moves from a statement of intention to sustainable implementation.[4–6] To embed HIA in NSW in an integrated and sustainable way required a range of strategies that were complementary to the capacity-building strategies used so far.

Processes

The NSW Health Impact Assessment Project[2] began in 2002 with the intention of raising awareness, exploring the feasibility of the development of HIA in NSW and identifying areas where capacity needed to be built. In 2005, a three-year capacity building project commenced which aimed to integrate HIA into the NSW health system as a tool to improve internal planning and decision-making and as a way to engage external partners on initiatives that influence health outcomes.

Emerging in the early stages of the capacity building project was the realisation that the project was building capacity within the health system at a practitioner level. However, if HIA was to influence healthy urban planning, it also needed to be embedded in agencies other than NSW Health. This required additional development of infrastructure and sustainable intersectoral capacity.

To explore mechanisms to build this capacity a Healthy Urban Planning workshop was held in late 2005. Senior managers from NSW Health, the NSW Department of Planning and local government agencies attended the workshop. It aimed to build partnerships and capacity intersectorally. The workshop identified a limited organisational capacity not only within NSW Health but also in other agencies to work collaboratively and use HIA as a tool to strengthen current planning approaches. Also evident was that capacity needed to be built at different levels within organisations and that not all people in all systems need to have the skills to do an HIA.

A framework was developed that defined a set of capacity-building strategies at multiple levels (Figure 1). These became known as micro, meso and macro strategies to embed HIA in the health system and agencies other than health.

Findings

The capacity building project has demonstrated that to influence healthy urban planning, HIA capacity is needed in different ways at both operational and strategic levels.

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The micro strategies influence organisational capacity to implement HIA at an individual level. For example, the 'Learning by Doing' developmental site training program built the capacity of individuals and service teams to understand and implement the HIA methodology.

The meso strategies influence the agency commitment to providing resources and support that builds organisational capacity in HIA. Examples of that are: the Population Health Service Level Agreements between the Area Health Services and the NSW Department of Health, which stipulate a requirement to promote strategic alliances with agencies such as local government and to support the implementation of the NSW Health Impact Assessment Project.

The macro strategies have become the basis for the creation of healthy public policy approaches in agencies other than health to deliver program responses to health problems in a sustainable manner. An example is the creation of formal communication mechanisms between the NSW Department of Health and the Department of Planning on the use of HIA.

Discussion

Different types of HIA capacity need to be built at the micro, meso and macro levels of organisations in order to improve considerations of health in urban planning. A healthy public policy approach is useful for understanding these different levels of capacity. Healthy public policy improves the conditions under which people live: ie secure, safe, adequate and sustainable livelihoods.[7]

Making healthy public policy sustainable is multi-dimensional, requiring a range of strategies, at a range of levels that are continually tailored to opportunities arising from the development of individual and organisational capacity. Commonality of intent within individual systems to improve considerations of health in urban planning around policies, programs and projects to improve health may not always be enough.

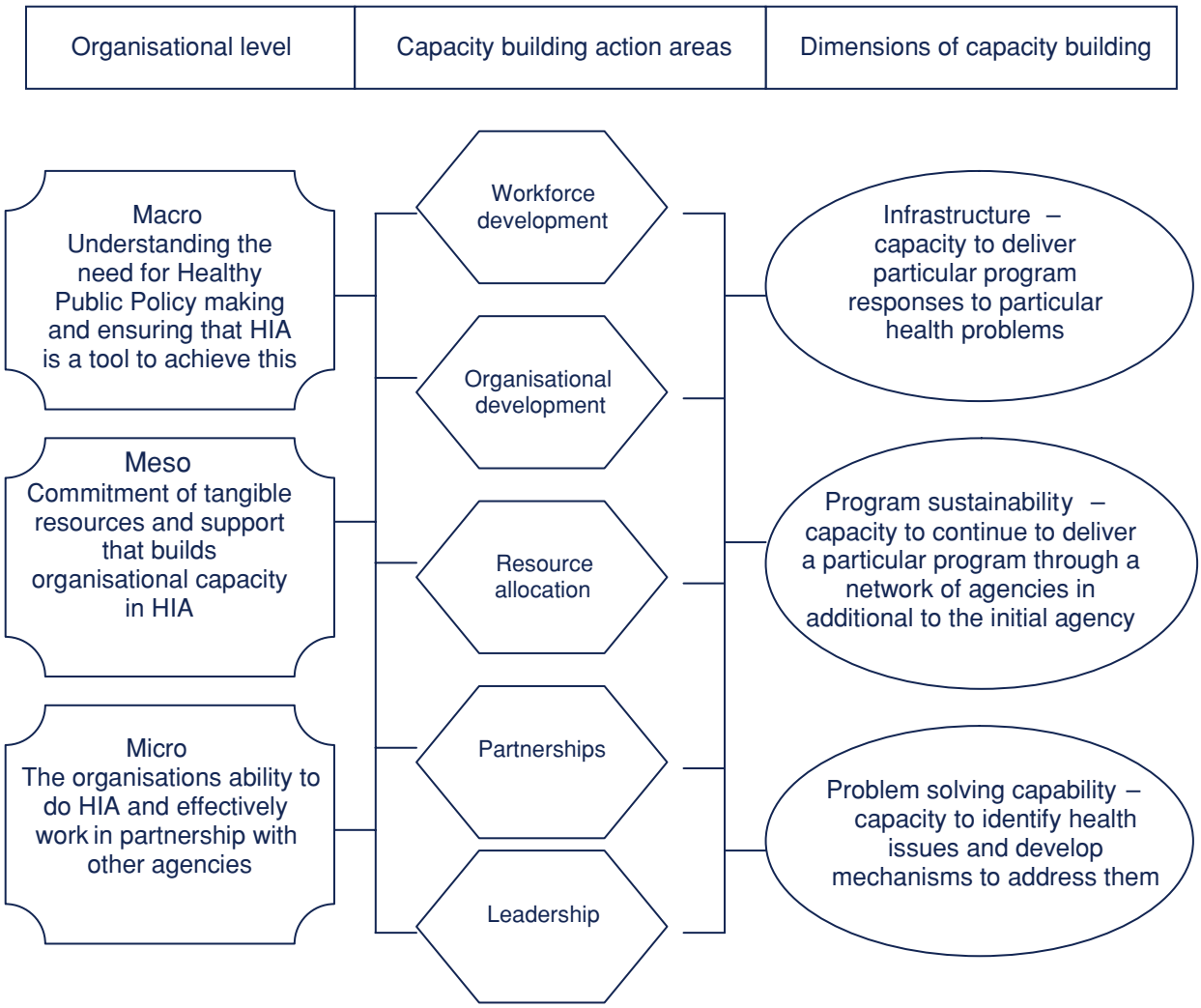

Figure 1. A framework for building capacity through multiple level strategies to embed health impact assessment and healthy public policy

Sustainable intersectoral healthy public policy needs projects or programs based on this multidimensional aspect of capacity building. Multiple strategies at multiple levels need to be incorporated early in the planning process. In particular, consideration of strategies at the meso and macro level will support intersectoral outcomes that reflect joint infrastructure development, sustainability and organisations' problem-solving capability.

The HIA program is now therefore channelling efforts around decision-makers at the meso and macro level of health and human services to ensure that there is ongoing adoption of the social determinants of health as the basis for healthy urban planning and as a lever for the creation of healthy public policy approaches.

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Channelling Edwin Chadwick: beyond utopian thinking in urban planning policy and health

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Abstract: Health impact assessment is advanced as a formal means to assess the direct and indirect health impacts of urban planning decisions and processes. It is, however, an intrinsically passive policy device. A more comprehensive and practical policy framework or architecture, reminiscent of that devised by Edwin Chadwick and the sanitary reform movement in 19th Century England, will be necessary to reorient the goals and practices of urban planning.

In 1516 Thomas More published *Utopia*,[1] his vision of an ideal society in which privilege, title and private property had been abolished and the head of state was chosen in representative elections. People lived in spacious, well-ventilated houses, and a social safety net prevented the poor from becoming ill and the ill from becoming poor.

Left unchecked, the growth of cities is at the mercy of landholders and speculators with no direct interest in the quality of future urban environments nor in the health of its citizens. Utopian visions of urban form have had and continue to have a role in planning for the future. Ebenezer Howard's *Garden Cities of Tomorrow*[2] placed cities in the countryside, distancing populations from polluted and unsanitary town centres. Le Corbusier's cities of tomorrow, with connecting freeways, high-rise apartments and open space, promised efficiency, amenity and access.[3] In Sydney, the suburb of Bonnyrigg, a privately developed estate, and high-rise public housing in Waterloo and Surry Hills were in the mould of Howard and Le Corbusier respectively.

Just as More's *Utopia* was transformed into the nightmarish dystopias of Aldous Huxley[4] and George Orwell,[5] modern urban planning has had its failures, as Jane Jacobs made plain in *Death and Life of Great American Cities*:[6]

> But look what we have built: low income projects that become worse centres of delinquency, vandalism and hopelessness than the slums they were built to replace; middle income housing which are true marvels of dullness and regimentation, sealed against the buoyancy and vitality of city life; luxury housing that mitigates its inanity with vapid vulgarity, expressways which eviscerate great cities. This is not rebuilding, this is the sacking of cities.

How, in the process of urban development, can we steer a course between the need for a strong contemporary urban vision, the excesses of utopianism and the chaos of unregulated development? Integrated planning recognises that urban development is a highly complex and contested activity that must assimilate the demands of population growth, land ownership and use, natural resource management, transport and infrastructure, environment and sustainability. London,[7] Melbourne,[8] Sydney[9] and South East Queensland[10] have all produced integrated long-term plans that have grappled with this complexity. While these plans acknowledge the long-term consequences for health of, for example, incompatible land use, they are almost silent on public health questions such as the health and economic impacts of sedentarism and the loss of social cohesion in many of our communities.

How is the proper consideration of the health of future urban populations to get a seat on this runaway train of urban growth? It may be useful to consult the public health archives. Edwin Chadwick was the architect of public policy reform in Victorian England. His manifesto for public health, the *Report … from the Poor Law Commissioners on an Inquiry into the Sanitary Conditions of the Labouring Population of Great Britain*,[11] published in 1842, set the stage for a suite of major reforms. It included most famously the first *Public Health Act* but also wholesale reforms of local administration and the funeral industry, the training and recruitment of a cadre of Medical Officers of Health, the resolution of technical arguments about the form of London's sewers and the financing of a massive program of public hygiene works. Although argued on the basis of the flawed science of miasmatism, (which postulated that most illness resulted from the inhalation of the effluvia of rotting animal and vegetable matter) it was buttressed by convincing, but still nascent, epidemiological and demographic data.

In contrast, the Healthy Cities movement was prompted by the World Health Organization (WHO) as an embodiment of the newly minted principles of the Ottawa Charter.[12] It

set out to engage local government in health development with a special emphasis on health inequalities and urban poverty, the needs of vulnerable groups, participatory governance and the social, economic and environmental determinants of health. Today, over 1200 cities and towns from more than 30 countries in the WHO European Region are Healthy Cities. Now in its fourth phase (2003–2008), the program is focussed on three core themes: healthy ageing, healthy urban planning and health impact assessment. In addition, all participating cities focus on the topic of physical activity and active living.

These two policy approaches represent a polarity in public health policy and practice. The former, a more comprehensive policy architecture which surveys the entire field of urban planning, looking for opportunities for influence and change which would have long-term benefits for health;[13] the latter a set of principles for achieving a healthier future, poorly articulated with mainstream urban planning and yet important for building a constituency for change, without which any policy will falter.

Perhaps after 20 years of public health advocacy, a more Chadwickian eye needs to be cast over our approaches to urban health reform.

Regulation hard and soft

Edwin Chadwick's penchant for prescriptive regulation would be unacceptable to governments in the 21st Century. Mandating, for example, health risk assessments of new developments, would be perceived as an unnecessary imposition. There are, however, softer regulatory options that may provide real opportunities for healthy urban planning:

- Emerging opportunities for the inclusion of health in existing compliance standards such as the recently introduced NSW Building Sustainability Index (BASIX) and the foreshadowed subregional planning tool (METRIX).
- Guidance documents, preferably with joint endorsement by health and planning authorities that contain practical and detailed advice about healthy design, eg the Western Australian Planning Commission (WAPC) *Liveable Neighbourhoods Code*,[14] the National Heart Foundation's *Healthy by Design Guide for Local Government*,[15] and under development is the Commonwealth *Healthy Spaces And Places: National Planning Guidelines Project*.[16]
- Prescribing a consideration of critical health issues in environmental impact statements, eg in NSW Planning, focus meetings are the juncture in the planning process where the contents of an environmental impact statement are decided.
- Possible regulatory innovation that could benefit food and transport systems, such as tradeable development rights for agricultural land and land near transport.

Translate public health objectives into the language of economics

Increasingly, the costs of some of the direct and indirect health effects of urban air pollution, overweight and obesity and diabetes are being documented.[16] What would be even more helpful, given the inevitability of population growth and urban expansion, would be estimates of the marginal costs to health of each of the feasible urban development scenarios. Furthermore if there are specific policy objectives, then the costs and benefits of these proposals need careful assessment. For example, the early placement of schools and public transport infrastructure in new developments may establish patterns of mobility and interconnectedness that will have lasting health benefits for the new community. Treasuries are more likely to support costed proposals which may be able to be included in development levies and which deliver short- to medium-term benefits.

Professional training

Just as Chadwick and his successors created Medical Officers of Health and Environmental Health Officers as the local arbiters and inspectors of public health risk, so we will need to create a cadre of trained professionals for the issue and for the times. The recent example of the upskilling of the private sector in their ability to undertake health assessment of contaminated sites, stimulated by specific requirements in the *Contaminated Lands Management Act 1997*, suggest that the labour market will respond rapidly if the right demands are included in public health and planning legislation.

Whole of Government action

The health of current and future communities needs to be a policy consideration at all levels of the planning system, from strategic to regional to local planning. Collaboration across government is vital if this is to be achieved: there have been some recent successes. In the early stages of the rollout of the Sydney Metropolitan Strategy in 2007, it became obvious that a potentially unwelcome outcome might be a rush to develop high-density residential areas along very busy road transport corridors. The Department of Planning has initiated a process to develop, with the agreement of all NSW government agencies, guidance on acceptable air and noise criteria for these kinds of development.

Chadwick was more utilitarian ideologue than utopian,[17] and as the architect of the workhouse and the revision of the Poor Laws he was for a time dubbed 'the most hated man in England'. After his demise, the *Times* gloated: 'we would rather take our chances with cholera than be bullied into health by the likes of Mr Chadwick'. And yet on the 150th anniversary of Chadwick's *1848 Public Health Act,* the British Medical Journal asserted that its (and his) qualities of imagination and determination are still needed today.[18] I agree.

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Health impact assessment and urbanisation. Lessons from the NSW HIA Project

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Abstract: Health impact assessment (HIA) can ensure that health is a core element of sustainable urban planning. Based on the experience of the NSW HIA Project, we discuss the current strengths of HIA and challenges facing it as an urban sustainability tool across five areas: the use of evidence; integrating HIA with environmental impact assessments; including consideration of equity; recognising wider determinants of health; and building capacity.

This issue of the *Bulletin* articulates the promise of health impact assessment (HIA) as a tool to improve sustainable urban planning. The case studies show how HIA places health as a core element of sustainable urban planning, adding this to the more established social, environmental and economic elements of sustainability.[1] At the same time, the case studies demonstrate the potential of HIA to put health on the urban sustainability agenda not only as a problem to overcome, but as a solution to work towards.

However, continued use of HIA as part of sustainable urban planning requires building on this promise. Our experience of undertaking the NSW Health Impact Assessment Project (which included supporting the cases from NSW that are described in this issue) has provided insights into HIA as it develops as a lever for incorporating health within sustainable urban planning. Based on this experience, this article reflects on the current strengths of HIA and the challenges facing it as an urban sustainability tool across five areas:

- The use of an increasing evidence base linking health and urban sustainability
- Adding health equity to sustainable urban planning
- Strategically using the wider determinants of health to engage with the sustainability agenda and inform assessment of impacts
- Integrating HIA with environmental impact assessment and
- Building on the capacity of the health system to undertake HIA to engage with urban sustainability through healthy public policy.

Deeper reflection on each area encourages the further success of HIA as it develops and is promoted as a useful sustainable urban planning tool.

Use of evidence

Strengths

The main purpose of an HIA is to gather and assess evidence on health impacts to support decision-making.[2] This use of evidence is recognised as an important value-adding component of HIA. Critical and systematic use of evidence is a major strength that health professionals, through the use of HIA, can bring to sustainable urban planning. For example, a recent report on the usefulness of HIA to local governments in NSW indicated that councils saw the evidence HIA introduced into the process as valuable as it 'not only extended their own understanding about health impacts, but could add weight to the case being put to the Council in reports'.[3]

The usefulness of HIA as an evidence-based tool for urban sustainability is likely to grow in the near future. The evidence base on health and urban sustainability is growing both in Australia[4,5] and overseas.[6–9] Evidence is also becoming more sophisticated, linking health to sustainability issues as both a broad (associated with wellbeing) and narrow (associated with disease) concept.[10] For example, an HIA on a transport plan could now incorporate evidence on both direct impacts – through exposure to toxins on respiratory illness – and indirect impacts – through car use on social capital.[6]

Challenges

However, the increasing complexity of evidence presents challenges for HIA as a tool for urban planning. Internationally, it is recognised that the value of HIA is in its influence on real world decision-making as opposed to being a scientific tool.[11] Real world decision-making often occurs within tight timeframes, and the consequences of those decisions can have considerable implications for health. The strength of HIA is the ability to gather and assess scientific evidence to influence such decisions. As the complexity of the scientific evidence base grows, a significant challenge for HIA will be to

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meaningfully filter good-quality evidence into real-world planning decisions.

One potential way forward is the creation of a clearing-house to encourage critical appraisal of the most recent evidence by both health and other professionals involved in sustainable urban planning.[12] This central repository could reduce the complexity of the evidence on impacts by creating domains of health impacts, directly related to their determinants.[13]

Health impact assessment in relation to environmental impact assessment

Strengths

The most familiar form of impact assessment to people working in areas related to sustainability in both Australia and overseas is environmental impact assessment. Environmental impact assessment is well positioned to be the principal impact assessment vehicle to encourage sustainable urban planning. Fortunately, environmental impact assessment currently offers a number of opportunities for HIA, and HIA can add value to it.

First, HIA's similarity to environmental impact assessment (HIA was born out of environmental impact assessment) means that the concept, its aims and stepwise process are immediately familiar to sectors other than health such as urban planning. Second, HIA can add to environmental impact assessment through adding consideration of both positive and negative impacts – environmental impact assessment practice is currently focussing on mitigation of negative impacts. For example, an HIA on airport developments might recommend steps to abate noise and reduce air pollution (the common health focus of an environmental impact assessment) but also to encourage local employment opportunities and re-route roads to minimise the risk of injury for the local community.[14] Third, integrating health into environmental impact assessment will encourage incorporation of core HIA values such as equity and transparent use of evidence.[15]

Challenges

Despite this potential for HIA within environmental impact assessment, international research has consistently found that environmental impact assessments inadequately address health.[16–18] Reasons offered for this situation include: problems with quantifying what is meant by health; resources and time associated with assessing difficult impacts such as health; the often controversial and confidential nature of health impacts; lack of a mandatory framework covering how health should be considered within environmental impact assessment; and professional bias among environmental impact assessment practitioners.[15,19] Given the potential importance of environmental impact assessment to sustainability, resolving these issues is of major importance to HIA practitioners interested in urban sustainability. The challenge is to ensure that health is not sidelined when included in an environmental impact assessment and is assessed as rigorously as possible.

Equity

Strengths

Equity is a core value underpinning HIA,[20] enabling consideration of the differential distribution of potential impacts of a proposal on different population groups that are both unfair and avoidable.[21] In HIA this means considering whether the benefits of the proposal may be experienced by one group and not others, and similarly whether the negative impacts of a proposal may be experienced by one group and not others.[22] At the same time, the consideration of equity is recognised providing a fundamental (yet often unconsidered) dimension to sustainable urban planning.[7]

In addition, equity is not far removed from the urban planning concept of 'environmental justice', the basic premise of which is that all people have the right to live and work and play in safe, healthy places and communities.[23] Human health has been a central concern of the environmental justice movement, and HIA can build on this opportunity by strengthening the focus of environmental justice on the distribution of health inequality.[24] An example would be assessing the potential anticipated and unanticipated differential health impacts of introducing urban regeneration programs across age, gender, culture, socio-economic status and disability.

Challenges

Despite equity being a core value of HIA, in practice the consideration of differential distribution of equity has proved more difficult.[25] Reasons for this include:

- Lacking definitions concerning which potential impacts are unfair and whether proponents of a proposal are in a position to influence their elimination
- Lack of awareness of which population groups to consider in an HIA, and
- Lack of available data to assess whether these groups experience differential impacts.

Given the value of adding equity to urban sustainability through HIA, it is important to note that these difficulties are not insurmountable.

- Lack of definition on what is unfair and avoidable requires thinking through who is responsible for what actions on what impacts.[22]
- Concerning population groups, at a minimum it is recommended that age, socio-economic position, ethnicity and culture, locational disadvantage, and disability or other health status are considered (for an example of this in practice see Harris et al.[26]).

- Where data are lacking, the potential for inequity should nonetheless be reported (along with the lack of data).

Wider determinants of health

Strengths

The increasing recognition within the health sector of the wider determinants of health[27,28] is providing the health sector a valuable rationale for HIA. For example, the well known 'rainbow', based on the work of Dahlgren and Whitehead,[27] provides a tangible link to the impact of other sectors on health and health inequalities. Moreover, such frameworks can add depth to assessment of impacts in a HIA.[22] For example, impacts on children can be linked to education, or air quality can be linked to transport.

Challenges

There are several challenges to using determinants of health frameworks as part of HIA.

The first is that determinants of health should be considered on the causal pathway to health inequalities, rather than being ends in themselves. Often HIAs are distracted by one or two elements of such frameworks, forgetting differential distribution of impacts. For example, planning a development that addresses the determinants of social cohesion to encourage a sense of community should not distract from considering the need for affordable housing within the development to reduce the impact on poorer groups.

The second challenge is to make such frameworks of direct relevance to the everyday work of other sectors while retaining the importance of health. A useful example for urban sustainability has been developed in Europe, where urban planners have interpreted the Dahlgren and Whitehead framework to assist the design of healthy and sustainable communities based on an ecosystem model (and underpinned by equity).[29] The explicit intent of this work is to 'provide a focus for collaboration across practitioner professions and across topics'.

Third, HIAs should not be limited to simplistic use of the social determinants of health. Determinants themselves are rooted in the economic and political systems in which we live, and are therefore subject to inequitable distribution. Failing to address this in HIA can lead to an unrealistic assessment and the potential to perpetuate inequity.

Health sector capacity

Strengths

In NSW, we have had a stable period of investment by NSW Health to build the capacity of the system to undertake HIA. This investment was in response to the need of the health system to engage with others to reduce health inequities.[21] This capacity is now reflected in HIA being endorsed in several policy directions for NSW Health.[30,31] This will provide the impetus for continued use of HIA as a tool for intersectoral engagement in NSW for the foreseeable future. Furthermore NSW now has the capacity to undertake HIA as directed by these documents.

Challenges

However, it would be unrealistic to expect HIA to become an accepted sustainable urban planning tool without a concerted effort on the part of health professionals, supported by the health system. This effort needs to focus on issues underpinning urban sustainability that are as diverse as land-use planning, transport, environment and conservation, housing, water and energy use. Building the capacity to collaborate on these issues requires a shift towards healthy public policy, which means promoting policies and practices within health and non-health sectors that will in turn protect and promote health and reduce health inequalities.

A recent review of the NSW HIA project highlighted national and international experience suggesting that long-term use of HIA needs to be seen in a wider policy context of healthy public policy.[32] This is likely to hold true for HIA as an urban sustainability tool, given the varied dimensions of sustainability. At the same time, however, it should be noted that HIA is recognised as a tool that can bring the rhetoric of healthy public policy to action.[33,34] Instead of alluding to the interrelatedness of health and other sectors, HIA provides a transparent mechanism for making these relationships clear.[32]

Conclusion

Based on our experience of running the NSW HIA project, this paper has outlined key strengths and challenges relating to HIA as a tool for sustainable urbanisation: across the use of evidence; HIA within environmental impact assessment; equity; the wider determinants of health; and building capacity. By doing so, the article offers a picture of what is now in place and what further work is required if HIA is to grow as a useful tool in the sustainable urbanisation agenda.

Our future is an urban future. In NSW, HIA is now in a strong position to influence the impact of that future on health.

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Hepatitis C

Hepatitis C is caused by a virus that is spread through contact with infected blood. Prevention through the use of sterile needles and injecting equipment is key, and people with hepatitis C should ensure that others are not exposed to their blood.

What is hepatitis C?

- Hepatitis C is an infectious disease caused by the hepatitis C virus. There are several different genotypes (or strains) of the hepatitis C virus
- Infection causes hepatitis (inflammation of the liver)
- About one quarter of people who are infected will clear the virus within a few months
- The other three quarters develop an ongoing (chronic) infection and many will carry the virus for life. Some of these people eventually develop cirrhosis or cancer of the liver many years after infection.

What are the symptoms?

About 10 to 20% of people who are infected with the hepatitis C virus develop symptoms from two weeks to six months (usually six to nine weeks) after infection. These symptoms include tiredness, loss of appetite, stomach discomfort, nausea, vomiting, jaundice (yellowing of the eyes and skin) and dark urine.

How is it spread?

- A person with hepatitis C is infectious unless they clear the infection
- Reinfection with different genotypes of the virus can occur
- Hepatitis C is spread through contact with an infected person's blood, by:
    - using contaminated needles or sharing injecting equipment when injecting drugs, tattooing or skin piercing
    - transfusions (may have occurred in Australia before 1990)
    - needle-stick injuries
    - medical procedures involving contaminated instruments
    - sharing personal items that could have blood on them (eg razors, toothbrushes, nail scissors)
- Hepatitis C is rarely spread through sexual contact, but is more likely when there is contact with blood
- Hepatitis C may sometimes spread to the baby of a woman with hepatitis C during pregnancy or birth. The risk is higher if the mother has recently been infected or also has HIV infection
- Hepatitis C is not spread by casual contact such as hugging, sharing food or cutlery or using toilets. It does not seem to be passed on through breast milk, unless it is contaminated with blood.

Who is at risk?

- Injecting drug users
- Babies born to women with hepatitis C
- Haemodialysis patients
- Healthcare workers
- People born in countries with high rates of hepatitis C infection (such as in parts of Africa and the Middle East)
- People who have home tattoos or body piercing with non-sterile equipment
- Prison inmates.

How is it prevented?

To avoid infection:

- Do not share injecting equipment
- Do not share personal items that could have blood on them
- If having a tattoo or your body pierced, make sure only sterile equipment is used
- Practice safe sex.

There is no vaccine to prevent hepatitis C virus infection. Immunoglobulin is not effective. Since 1990, Australian blood banks have screened donated blood for hepatitis C.

If you have hepatitis C

- Do not donate blood. (Organs from a person with hepatitis C infection can sometimes be donated to another person who is already infected with hepatitis C)
- Do not share injecting equipment with others
- Be very careful to make sure that other people are not exposed to your blood
- Clean up any blood spills with a paper towel and clean thoroughly with detergent and water until no obvious stains are left. Large spills on carpet may need to be shampooed or steam cleaned
- Cover any wounds with a waterproof bandage
- Use condoms where there may be exposure to blood during sex.

How is it diagnosed?

Blood tests include:

- Antibodies to hepatitis C virus (shows that the person has been exposed to the virus at some time, but does not show if the virus is still present in the blood – babies born to women who have had hepatitis C can have their mother's antibodies for the first year or so

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of life, but this does not mean the baby is infected)
- A nucleic acid test, such as PCR (shows that the virus is in the blood)
- A viral load test (shows how much virus is in the blood)
- A genotype test (shows what strain of virus is in the blood – which can help in planning treatment)
- Liver function tests, which may show current liver damage.

How is it treated?

- There has been a significant improvement in the treatment of hepatitis C in recent years
- The drugs interferon and ribavirin can successfully treat hepatitis C in some people
- The success of treatment depends on the genotype and the amount of virus in the blood
- Treatment can clear the virus in up to 80% of people with genotypes 2 and 3 and up to 50% of people with genotype 1
- These drugs are usually taken for six to 12 months and can sometimes have serious side-effects.

A liver biopsy (where a small piece of liver is taken and examined under the microscope) shows the type and extent of any liver damage and may help in planning treatment.

To reduce the risk of further liver damage, people with hepatitis C should:
- Have hepatitis A and hepatitis B vaccinations
- Minimise alcohol intake
- Check with a doctor before taking prescription or over-the-counter drugs.

What is the public health response?

Hepatitis C is notifiable by both doctors and laboratories. Public Health Unit staff investigates cases of newly acquired infections to identify risk factors. Monitoring risk factors helps develop improved prevention programs.

For more information please contact your doctor, local public health unit or community health centre.

- the NSW Hep C Helpline on (02) 9332 1599 or 1800 803 990
- ADIS (Alcohol & Drug Information Service) (02) 9361 8000 or 1800 422 599
- NUAA (NSW Users & AIDS Association) (02) 8354 7300 or 1800 644 413

NSW HEALTH

Communicable Diseases Report, New South Wales, July and August 2007

Communicable Diseases Branch, NSW Department of Health

For updated information, including data and facts on specific diseases, visit www.health.nsw.gov.au and click on **Infectious Diseases.**

Tables 1 and 2 and Figure 1 show reports of communicable diseases received through to the end of July and August 2007 in NSW.

Influenza

NSW Health's influenza surveillance program monitors the rate of people presenting to selected emergency departments (EDs) with influenza-like illness, and the rate of specimens received by six major laboratories that test positive for influenza.

In July reports from EDs initially peaked in the middle of the month at very high levels (6.6/1000 presentations) before a short-lived decline. Influenza outbreaks were reported from 12 residential care facilities, three military facilities and one boarding school, across six of the eight area health services.

In August reports from EDs increased again, and peaked in the middle of the month at even higher levels (9/1000 presentations) before declining. Laboratories reported testing large volumes of specimens for influenza throughout August. Influenza outbreaks were reported from 16 residential care facilities, across six of the eight area health services. Greater Western Area Health Service reported that a 2-year-old boy died after a brief febrile illness. Tests of respiratory samples taken after death were

positive for influenza A. For more information see http://www.health.nsw.gov.au/infect/pdf/flureport.pdf.

Meningococcal disease

In July, 11 cases of meningococcal disease were reported in NSW (seven females and four males). Of these, none were caused by infection with serogroup C and five were caused by serogroup B meningococci bacteria. One death was reported. In August, 21 cases were reported (10 males and 11 females). Of these one was due to serogroup C and seven were due to serogroup B meningococci bacteria. No deaths were reported. In total, 69 cases of meningococcal disease have been notified in NSW in 2007, including two deaths. The number of reports in 2007 is similar to 2006.

Syphilis

There has been an increase in reports of infectious syphilis in NSW since the last quarter of 2006 (see: http://www.health.nsw.gov.au/data/diseases/syphilis.html). Cases have been predominantly among men living in central and eastern Sydney, and although risk factors are not routinely collected on cases, discussions with clinicians indicate that many cases are in men who have sex with men.

Enterics

In July, NSW public health units investigated 53 outbreaks of gastroenteritis. Eight were suspected food-borne outbreaks. Four of these (affecting between three and five people) were associated with restaurant meals and were consistent with viral infection transmitted via food. For the other four, investigators suspected that the outbreaks were spread from person-to-person rather than via food.

Person-to-person spread of viral gastroenteritis was also the most likely cause of the other 45 outbreaks, all reported from institutions. Twenty-six outbreaks were reported in aged care facilities and affected more than 500 people. Fourteen outbreaks were reported in hospitals and affected almost 300 people. Four outbreaks were reported in child care centres and one and in a camp setting.

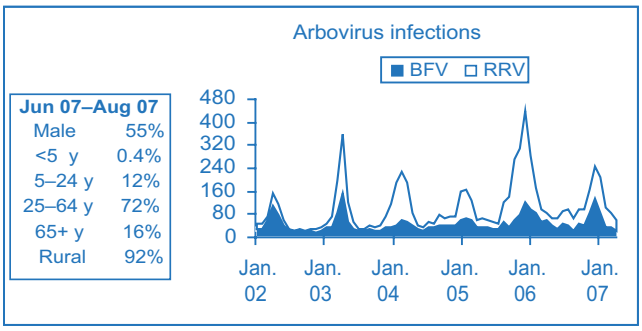
In August, NSW public health units investigated 63 outbreaks of gastroenteritis. Among these were three suspected food-borne outbreaks. Of these, two were associated with restaurants and affected between two and five people. Both restaurants were inspected by the NSW Food Authority. The cause of these outbreaks was not determined. The third was in an institutional setting and affected approximately 30 people. Symptoms were consistent with food-borne disease but a source of the outbreak was unable to be identified. The outbreak was investigated primarily by on-site personnel with support from the Public Health Unit.

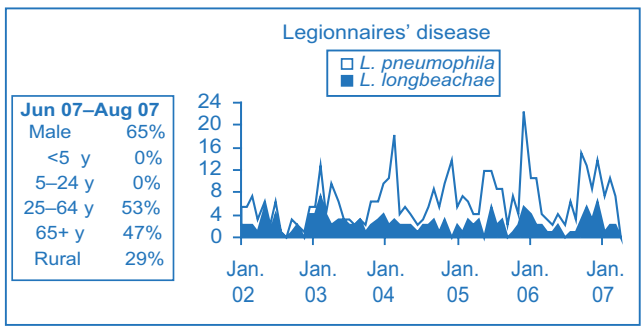
Person-to-person spread of viral gastroenteritis was the most likely cause of the other 60 outbreaks, all reported from institutions. Of these, 44 were reported in aged-care facilities and affected more than 670 people, 11 were reported in hospitals and affected more than 100 people, and five were reported in child care centres and affected 39 children.

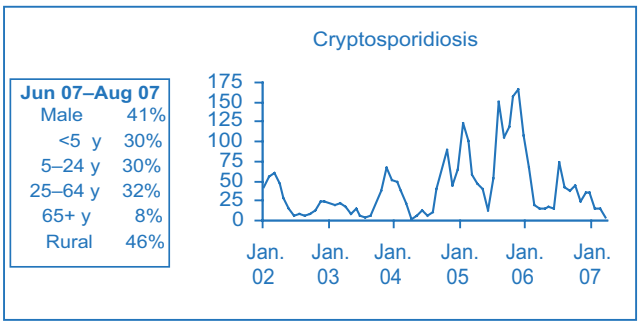
Viral gastroenteritis is common in the winter months. Norovirus and rotavirus are common causes of gastroenteritis and can be prevented by simple measures such as hand washing with soap and water. For further information and recommendations on outbreak control including 'Gastro Packs' for use in aged care and hospital facilities, go to: http://www.health.nsw.gov.au/infect/diseases.html and scroll down to 'Gastroenteritis (viral)'. Fewer outbreaks have been report over winter 2007 (n = 149) compared with winter 2006 (n = 184).

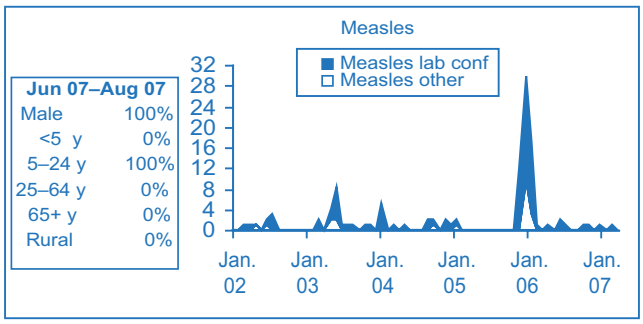
Figure 1. Reports of selected communicable diseases, NSW, Jan 2002 to August 2007, by month of onset.
Preliminary data: case counts in recent months may increase because of reporting delays. Laboratory-confirmed cases only, except for measles, meningococcal disease and pertussis. BFV, Barmah Forest virus infections; RRV, Ross River virus infections. Lab Conf, laboratory confirmed. Men Gp C and Gp B, meningococcal disease due to serogroup C and serogroup B infection, other/unk = other or unknown serogroups.
NB: multiple series in graphs are stacked, except gastroenteritis outbreaks.
NB: Outbreaks are more likely to be reported by nursing homes and hospitals than by other institutions.

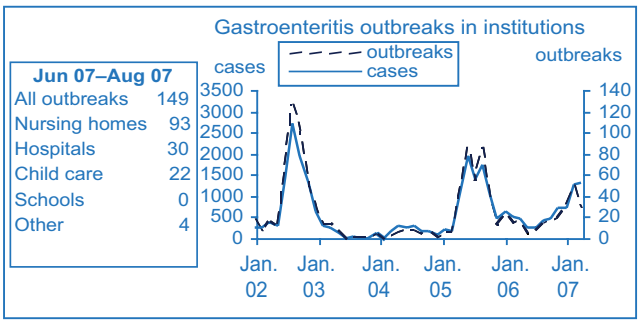
NSW Population	
Male	50%
<5 y	7%
5–24 y	27%
25–64 y	53%
65+ y	13%
Rural	46%

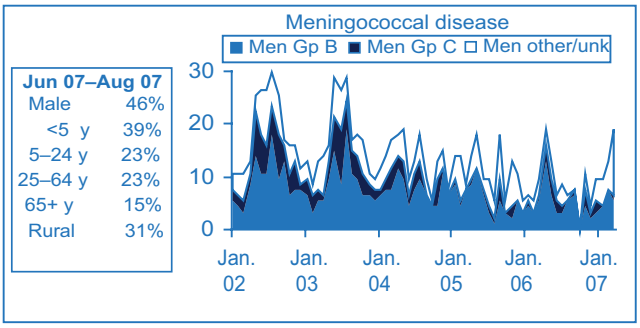


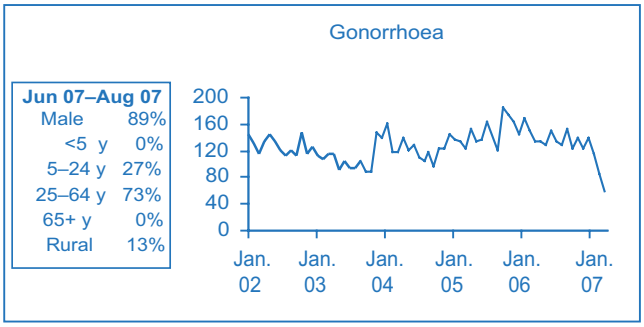


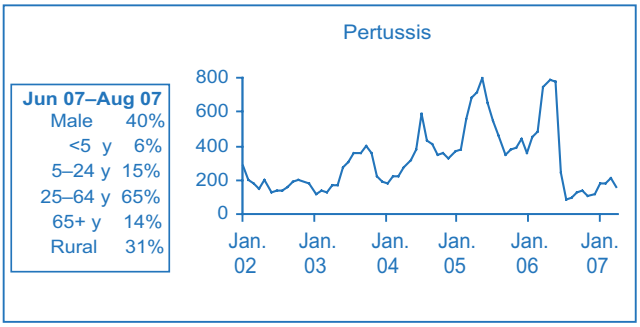


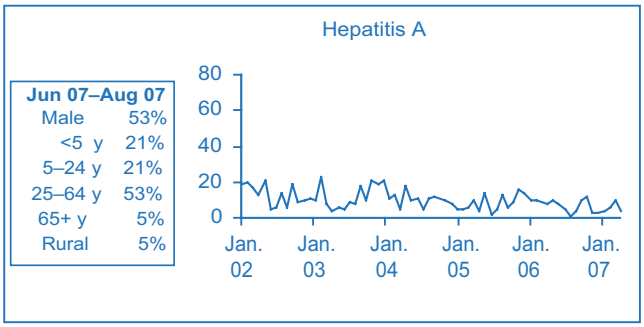












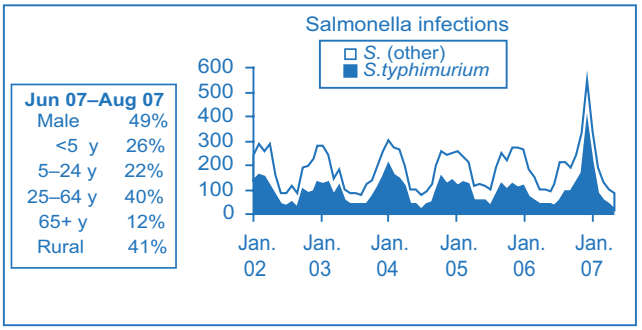


Table 1. Reports of notifiable conditions received in July 2007 by Area Health Services

Condition	Area Health Service (2007)																		Total	
	Greater Southern		Greater Western			Hunter/New England		North Coast		Northern Syd/ Central Coast		South Eastern Syd/Illawarra		Sydney South West		Sydney West		Justice		
	GMA	SA	FWA	MAC	MWA	HUN	NEA	MNC	NRA	CCA	NSA	ILL	SES	CSA	SWS	WEN	WSA	Health	For July	To date
Blood-borne and sexually transmitted																				
Chancroid[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chlamydia (genital)[a]	50	29	8	12	32	94	19	27	61	52	92	48	162	93	45	34	98	7	974	7609
Gonorrhoea[a]	2	1	–	–	1	1	1	–	3	1	8	4	35	13	5	–	6	–	83	908
Hepatitis B – acute viral[a]	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	–	–	2	35
Hepatitis B – other[a]	6	1	1	4	–	3	1	1	1	3	31	2	40	54	46	3	58	3	264	2034
Hepatitis C – acute viral[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	25
Hepatitis C – other[a]	15	10	9	12	15	42	10	33	25	44	31	12	56	44	45	18	47	46	516	3821
Hepatitis D – unspecified[a]	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1	8
Lymphogranuloma venereum	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Syphilis	–	2	–	–	2	–	1	3	3	3	5	1	45	12	5	4	5	1	93	710
Vector-borne																				
Barmah Forest virus[a]	–	8	–	1	–	9	–	3	5	2	–	2	–	–	1	1	–	–	32	424
Ross River virus[a]	1	4	–	3	2	12	–	6	7	4	2	1	3	1	–	–	–	–	46	517
Arboviral infection (other)[a]	–	–	–	–	–	1	–	1	3	–	1	–	1	–	–	–	–	–	7	56
Malaria[a]	–	1	–	–	–	–	–	–	–	–	–	–	–	2	–	–	1	–	4	56
Zoonoses																				
Anthrax[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Brucellosis[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4
Leptospirosis[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7
Lyssavirus[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Psittacosis[a]	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1	–	2	24
Q fever[a]	–	2	2	2	1	3	5	–	1	–	–	–	–	–	–	–	–	–	16	127
Respiratory and other																				
Blood lead level[a]	–	–	2	15	1	1	–	–	1	–	2	2	1	2	4	4	2	–	37	137
Influenza[a]	6	9	–	2	4	49	25	5	17	12	35	17	46	7	20	19	86	1	360	600
Invasive pneumococcal infection[a]	2	3	1	1	1	12	1	5	4	3	12	9	9	6	9	3	4	–	86	272
Legionella longbeachae infection[a]	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1	–	2	23
Legionella pneumophila infection[a]	–	1	–	–	–	–	–	–	–	–	1	–	1	1	–	1	2	–	7	48
Legionnaires' disease (other)[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Leprosy	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
Meningococcal infection (invasive)[a]	–	–	–	–	–	1	–	–	2	–	–	–	4	–	2	1	1	–	11	49
Tuberculosis	1	1	–	–	–	–	–	–	–	–	3	–	4	–	5	–	10	–	24	227
Vaccine-preventable																				
Adverse event after immunisation[b]	–	–	1	1	3	–	–	–	–	1	–	2	4	–	1	1	2	–	16	101
H. influenzae b infection (invasive)[a]	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	2	3
Measles	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1	4
Mumps[a]	–	–	–	–	–	–	–	–	–	–	5	–	7	1	4	–	1	–	18	93
Pertussis	5	5	–	14	–	18	4	5	7	6	28	8	28	9	22	5	42	–	206	991
Rubella[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11
Tetanus	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1	4
Enteric																				
Botulism	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cholera[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
Cryptosporidiosis[a]	1	2	–	1	–	–	2	–	1	3	3	–	2	–	–	2	2	–	19	220
Giardiasis[a]	5	1	1	3	2	10	7	8	2	12	26	2	26	15	6	7	23	1	157	1283
Haemolytic uraemic syndrome	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6
Hepatitis A[a]	–	–	–	–	–	–	–	–	1	–	2	1	2	1	2	–	–	–	9	44
Hepatitis E[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5
Listeriosis[a]	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1	14
Salmonellosis[a]	3	5	–	1	5	10	6	2	5	5	12	9	19	8	7	4	10	–	111	1836
Shigellosis[a]	–	–	–	–	–	1	–	–	1	–	–	–	1	–	–	–	–	–	3	38
Typhoid[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	29
Verotoxin-producing *E. coli*[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6
Miscellaneous																				
Creutzfeldt–Jakob disease	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1	2
Meningococcal conjunctivitis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

[a]Laboratory-confirmed cases only. [b]HIV and AIDS data are reported separately in the Public Health Bulletin quarterly.

NB: From 1 January 2005, Hunter/New England AHS also comprises Great Lakes, Gloucester & Greater Taree LGAs, Sydney West also comprises Greater Lithgow LGA.

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GMA, Greater Murray Area; MAC, Macquarie Area; NEA, New England Area; CCA, Central Coast Area; SES, South Eastern Sydney Area; WEN, Wentworth Area; SA, Southern Area; MWA, Mid Western Area; MNC, North Coast Area
NSA, Northern Sydney Area; CSA, Central Sydney Area; WSA, Western Sydney Area; FWA, Far West Area; HUN, Hunter Area; NRA, Northern Rivers Area; ILL, Illawarra Area; SWS, South Western Sydney Area; JHS, Justice Health Service

Table 2. Reports of notifiable conditions received in August 2007 by Area Health Services

Condition	Area Health Service (2007)																			Total	
	Greater Southern		Greater Western			Hunter/New England		North Coast		Northern Syd/ Central Coast		South Eastern Syd/Illawarra		Sydney South West		Sydney West		Justice			
	GMA	SA	FWA	MAC	MWA	HUN	NEA	MNC	NRA	CCA	NSA	ILL	SES	CSA	SWS	WEN	WSA	Health		For Aug.	To date
Blood-borne and sexually transmitted																					
Chancroid[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	–
Chlamydia (genital)[a]	32	23	7	14	24	100	49	31	45	44	77	42	172	101	25	24	76	6		903	8580
Gonorrhoea[a]	1	–	–	–	–	2	–	–	4	3	9	2	30	11	1	2	3	1		70	998
Hepatitis B – acute viral[a]	–	–	–	–	–	–	–	–	–	–	1	–	1	–	2	–	–	–		4	40
Hepatitis B – other[a]	4	3	–	1	–	4	–	2	3	2	33	7	40	55	76	2	58	1		293	2357
Hepatitis C – acute viral[a]	1	–	–	1	–	–	–	–	–	–	–	–	1	1	–	–	–	–		4	30
Hepatitis C – other[a]	7	16	–	11	7	45	13	24	30	32	24	27	68	71	30	22	34	35		500	4359
Hepatitis D – unspecified[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–		1	9
Lymphogranuloma venereum	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	–
Syphilis	–	–	–	2	1	2	1	2	2	1	7	–	40	29	5	–	8	1		101	803
Vector-borne																					
Barmah Forest virus[a]	1	3	–	1	–	3	–	2	8	1	1	2	–	–	–	–	–	–		22	446
Ross River virus[a]	1	3	1	5	1	12	1	7	6	4	3	–	2	–	–	–	1	–		47	563
Arboviral infection (other) [a]	–	–	–	–	–	–	–	–	–	–	2	–	3	–	–	–	–	–		5	61
Malaria[a]	–	–	–	–	1	2	–	–	–	1	1	–	–	1	1	–	2	–		9	65
Zoonoses																					
Anthrax[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	–
Brucellosis[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	4
Leptospirosis[a]	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–		1	9
Lyssavirus[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	–
Psittacosis[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	24
Q fever[a]	–	–	–	2	–	–	8	–	3	1	–	1	–	–	–	–	1	–		16	142
Respiratory and other																					
Blood lead level[a]	–	–	–	17	3	–	–	1	–	1	1	12	1	2	–	–	–	–		38	176
Influenza[a]	11	42	4	8	12	116	36	18	71	24	60	22	55	10	15	30	115	2		654	1278
Invasive pneumococcal infection[a]	3	3	1	4	4	10	4	4	1	7	7	6	8	3	2	3	3	–		73	344
Legionella longbeachae infection[a]	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–		1	24
Legionella pneumophila infection[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–		2	50
Legionnaires' disease (other)[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	–
Leprosy	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	3
Meningococcal infection (invasive)[a]	1	–	–	–	1	1	2	–	1	–	4	–	3	1	3	–	4	–		22	70
Tuberculosis	–	–	–	–	–	2	1	–	–	–	5	2	9	–	–	1	–	–		20	251
Vaccine-preventable																					
Adverse event after immunisation[b]	4	1	–	–	1	1	1	–	1	1	3	4	2	–	2	–	2	–		23	133
H. influenzae b infection (invasive)[a]	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	–	–		2	5
Measles	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	4
Mumps[a]	1	–	–	–	–	1	–	–	–	–	3	1	11	1	1	1	4	–		24	117
Pertussis	6	4	1	9	5	21	4	7	9	4	24	11	22	12	17	8	30	–		194	1188
Rubella[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	12
Tetanus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	4
Enteric																					
Botulism	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	–
Cholera[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	2
Cryptosporidiosis[a]	1	–	–	1	–	–	–	–	–	1	1	1	1	–	–	–	2	–		8	227
Giardiasis[a]	6	1	–	1	2	9	7	4	–	5	17	4	18	22	3	6	17	–		123	1420
Haemolytic uraemic syndrome	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–		1	7
Hepatitis A[a]	–	–	–	–	–	–	–	–	–	–	–	–	1	1	2	–	1	–		5	49
Hepatitis E[a]	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–		2	7
Listeriosis[a]	–	–	–	–	–	–	–	–	–	–	1	–	–	1	–	–	–	–		2	16
Salmonellosis[a]	5	3	–	1	3	8	3	1	12	2	15	6	14	4	10	3	12	–		103	1938
Shigellosis[a]	–	1	–	–	–	1	–	–	–	–	1	–	2	3	2	–	–	–		10	48
Typhoid[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–		3	34
Verotoxin-producing *E. coli*[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	6
Miscellaneous																					
Creutzfeldt–Jakob disease	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	2
Meningococcal conjunctivitis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	–

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Case Studies

Factsheet

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