HEALTHY BUILT ENVIRONMENTS: STAKEHOLDER ENGAGEMENT IN EVIDENCE BASED POLICY MAKING

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ABSTRACT

The built environment is a significant factor influencing human health. The evidence base from which policy makers and practitioners can draw is growing. Nevertheless, effecting change is proving difficult. This is associated with the cross disciplinary nature of the area, the number and breadth of stakeholders involved, and the traditional bureaucratic structures of government. Our paper reports research which investigates these issues.

The objectives were to identify key stakeholders engaged in healthy built environment policy development. Further, to elucidate insights into effective partnerships, strategies, tools and policy making for improved collaboration in healthy planning evidence based policy and practice. Sixteen in-depth, semi-structured face-to-face interviews were conducted with built environment and health professionals in New South Wales. Participants included urban planners, social planners, researchers and managers from the government and non-government sectors.

Following transcription and analysis of the interview texts, five interrelated themes emerged: Stakeholder Identification, Partnership Enhancement, Policy Evolution, Research Content, and Research Facilitation. Relationship building within and between organisations, together with the evaluation of policy and programs, and effective communication of results, were identified as key strategic directions in enhancing stakeholder engagement.

The development of healthy built environments requires improved collaboration and capacity building programs that foster understanding of the health impacts of the built environment within all organisations and the wider community. These strategies, coupled with practical examples of how organisations can value-add to policies and practice, are important steps in effective cross-disciplinary stakeholder engagement to build the evidence base for creating healthier built environments.

INTRODUCTION

There is a growing body of research evidence that shows a strong relationship between the built environment and health. This is particularly related to sedentary lifestyles in urban environments. Car-dominated transport systems, increased fast-food availability and an absence of community connection exacerbate obesity, physical inactivity and social isolation. These are modifiable risk factors for a range of chronic diseases including diabetes, depression, heart disease and cancer (AIHW, 2010). As Australia faces increasing health care costs from rising rates of these chronic ailments, health workers are seeking to influence the design of cities to make them more supportive of healthy ways of living. For this preventative approach to be effective, health professionals need to work in close collaboration with other professional groups, especially those from the built environment.

Our paper reports Australian research set in the state of New South Wales (NSW). We approached key public, private and not-for-profit stakeholders engaged in healthy built environment policy development, elucidating insights into effective partnership building. The paper also provides an overview of broader stakeholder relationship considerations as a prelude to describing the study methodology. We then present the results of analysis of in-depth interviews with professionals from the health and built environment sectors. We conclude by reflecting on the barriers to inter-disciplinary collaboration and suggest ways forward to develop partnerships that will facilitate policy formulation and effective action to effectively address the health impacts of the built environment.

STAKEHOLDER AND PARTNERSHIP DEVELOPMENT IN HEALTHY BUILT ENVIRONMENTS

The built environment is the setting for daily life. Its design, construction and management have profound impacts on physical and mental health (Barton, 2009; Corburn, 2009). This is recognised and acknowledged internationally (Crawford et al., 2010; Dannenberg et al., 2011) and in Australia (Kent et al., 2011). Cardiovascular and respiratory diseases, for example, are related to the air pollution generated in modern society (Dennekamp & Carey, 2010). Obesity, which is a risk factor for a raft of different chronic conditions, is further compounded by urban sprawl and declining levels of physical activity across an individual's lifespan (Garden & Jalaludin, 2009). Increased levels of physical inactivity now rank second only to tobacco smoking as a modifiable risk to the burden of chronic disease (WHO, 2009).

The magnitude of population health impacts from chronic disease supports the underlying need for policy action, particularly with population growth. In NSW – the setting for this research – the population has increased from 1.3 million people in 1900, to more than seven million in 2010 (NSW Health, 2010). This has been accompanied by rising rates of urbanism, with 60 per cent of all people now living in the State's largest urban metropolis – the city of Sydney. In response, governments – at the federal, state and local level – are required to develop policies, plans, and legislation that better consider the links between health and the built environment. Action such as this will align with recommendations from the World Health Organization (WHO) Adelaide Statement on 'Heath in all Policies' (WHO, 2010). A recent example in NSW is the Metropolitan Plan for Sydney. Increased residential densities are encouraged in the context of population health and wellbeing (NSW Department Planning, 2010).

Whilst government is a major stakeholder in this setting, the number and breadth of other stakeholders implicated in the development of policy and practice reflects the complexity of relationships between health and the built environment. This highlights the need to develop collaborative partnerships (Galea & Vlahov, 2005). These are particularly important for the development of research agendas to help us understand the health implications of built environment policy and practice (Owen et.al, 2004; Lee & Moudon, 2004; Srinivason et.al, 2003). The policies that flow from inter-disciplinary collaborations will improve practices in the built environment which directly and indirectly influence the built form as the setting for human behaviour. Policies guide the organisation of transport networks and the location of workplaces, community facilities, open space and residential neighbourhoods (Srinivasan et.al, 2003). How populations interact with these environments in choices of employment, housing and recreation will have a range of positive and potentially negative outcomes for physical and mental wellbeing.

The sharing of knowledge within and between professional disciplines is critical. And whilst many built environment professionals are keen to embrace public health guidance (Allender et.al, 2009), effecting change within this field to promote policy and practice continues to be challenging. Frumkin et.al (2004) recall the strong links that once existed between the built environment and public health professionals. The concept of zoning to separate dirty, polluting uses of land from the places where people lived was an important public health initiative. However, this close relationship was not sustained. Planning shifted its focus to urban policy development, design and environmental sustainability, while public health largely pursued a medical model (Botchwey et al. 2009). Today, as we face a different set of health problems

associated with our sedentary and automobile dependent lifestyles, there is a pressing urgency for improving relationships between the built environment and health professions. This was the underlying motivation for the current research. Its principal objective was to identify contemporary stakeholders engaged in healthy built environment policy development, with the aim of understanding how to build and support effective partnerships for research and policy development. In the next section we outline the study methodology before presenting our findings.

RESEARCH METHODOLOGY

The initial step in the research methodology was to identify stakeholder organisations with links to the planning, organisation and construction of the built environment, as well as those with a health focus. The resulting list included NSW state government departments, local councils, non-government organisations (NGOs), universities, professional associations and private sector developers. At this point, we also developed the interview questions, closely aligning them with the aims of the research project. Ethics approval was granted by the University of New South Wales School of Public Health and Community Medicine, Human Research Ethics Advisory Panel.

To ensure informed and insightful responses, experienced and senior professionals were selected for interview. Interviewees came from a range of organisations cognisant of the links between health and the built environment, as well relevant agencies where this was not formally acknowledged or pursued. Interviewees were invited to participate in the study by email and contacted by telephone to confirm further details. Although interviews were not secured with all selected organisations, a good spread across relevant agencies was achieved with 16 in-depth, semi-structured, face-to-face interviews conducted.

In accordance with the requirements of our ethics approval, participant stakeholder organisations have not been identified in this paper. Due to the relatively small number of professionals involved in this field in NSW, it would be very easy to identify research participants if a list of organisations was included. Accordingly, in this paper, interviewee identification is limited to a coding of the five broad stakeholder groups to which research participants belong:

- Government (G)
- Professional associations (A)
- NGOs (NGO)
- Private developers (D)
- Research organisations (R).

Each interviewee is further classified by the identifier of either 'health' (H) or 'built environment' (BE) to provide additional context to the origin of participant quotes.

The interview recordings and transcriptions were analysed following each interview. This is a standard qualitative research practice to ensure that feedback from the analysis informs ongoing data gathering (Lincoln & Guba, 1985; Patton, 2002; Richards, 2005). Analysis began with post interview reflections and listening to the recording immediately following each interview. Key words and quotes were identified at this time. This was later augmented from the completed and corrected interview transcripts prepared by a professional transcribing service. These processes combined to develop the coding framework which was also informed by the interview question list and the in-depth knowledge of interviews by the research team. Codes were ascribed to the transcripts, with themes identified and grouped by logical association for analysis. Illustrative quotes were noted for each of the identified themes.

RESULTS

We now detail the research results according to five broad interrelated themes identified from the interview transcript analysis. These themes are:

1. Stakeholder Identification
2. Partnership Enhancement
3. Research Content
4. Research Facilitation
5. Policy Evolution.

In discussing each theme, the findings are illustrated with specific illuminating quotes from the interviewees.

Stakeholder Identification

Interviewees represented a range of stakeholders currently engaged with healthy built environments. They also identified other professional organisations, from government to private industry, that need to be involved in healthy built environment policy and practice. The importance of engaging all levels of government was consistently articulated by participants, with the NSW state departments and local councils believed to be the most influential. Local government, in particular was chosen as a key stakeholder due to its close relationship with, and knowledge of local communities.

> *Local councils are evidently very important and very active in that space because they're the people who really have that grass roots level of contact* (G;BE)

Conversely, Federal Government was viewed as the least visible and influential in this space.

While governments at each level have varying amounts of influence, individual departments were identified as essential to the promotion of healthy built environments. Examples included the Departments of Planning, Transport and that of Premier and Cabinet.

> *[The Department of] Planning for instance as a regulator has control over how the built environment can be developed* (G; H)

Even though traditional 'health' care is not formally part of their core business, these departments were considered important because of the extent of their engagement with the built environment, as well as their respective power in decision making and access to resources. The latter was particularly attributed to the NSW Department of Premier and Cabinet.

> *The Department of Premier and Cabinet has a central and in some ways they have the key role which perhaps isn't identified nearly well enough* (NGO; H)

The limitations of traditional public sector structures were discussed by participants, with specific bureaucrats perceived as very important in advancing healthy built environment policy and practice. These include the State Premier, portfolio ministers and the Director Generals of government departments. Concern was raised that individuals in key positions may lack awareness of the growing evidence base for healthy built environments, rendering the longevity of programs and policies to an uncertain future. Political cycles were also seen as potentially problematic, as were public perceptions about the nature of 'health'.

> *One of the limitations is [that] our elected officials only have a four-year term so they only have influence over that period of time* (NGO; H)

> *It's much easier to be seen to make a difference in health by spending more money on hospital beds than by influencing the shape of communities. As a government, the plaudits for that are going to come in 20 years time when you're no longer in government* (G; BE)

Beyond the scope of government, private industry – including property developers – were credited as key stakeholders in shaping the built form. Professionals such as urban planners, architects, landscape designers, builders and their accrediting bodies were also identified as important determinants in healthy built environments. This is related to their interpretation and implementation of standards and guidelines. One built environment participant put it this way:

> *…developers, planners, urban designers, architects… They're stakeholders who can have a positive or a negative influence and it all depends on their level of concern or interest* (G; BE)

NGOs were also identified as influencing policy on specific health issues. In particular, the Heart Foundation – both in relation to its own work (Heart Foundation, 2011) and the way it links to the NSW Premier's Council for Active Living (PCAL; 2011). The growth and influence of NGOs is important in furthering healthy built environments. A built environment professional put it this way:

> *I think the emergence of issue specific organisations has changed the way people perceive health issues* (G; BE)

The health sector generally, and health professionals specifically, were viewed by those from the built environment as having some of the most important roles in healthy built environments. One of these is to translate health related research and evidence for other sectors and the general public. Medical practitioners, in particular, were perceived to have good standing, as well as power, within the community.

> *Doctors command a huge amount of respect… because we're all scared of dying… So there is power that can be used by the health sector to get messages across* (G; BE)

A number of the interviewees also highlighted the role and influence of the media in presenting issues to the community. The media has the potential to engage both positively and negatively in promoting healthy built environments. One participant talked about the importance of shaping positive messages to influence community perceptions:

> *…[the media is important] in terms of the presentation of the lifestyle, between healthy living and unhealthy living* (G; BE)

The place of community engagement and the potential for the public to influence policy and practice of government and stakeholder organisations were also discussed. Community groups are capable of articulating built environment issues and their relationship to health outcomes. Whilst the processes by which the community can meaningfully engage were questioned, many interviewees believed that community expectations are heard at the political level. This might mean however, that some concerns are short term. The process of community engagement was expressed by the following statements:

> *…at face value there are mechanisms by which a community voice can be heard. But if you read the paper on a daily basis, it sounds like the community is not happy* (G; H)

> *There's the opportunity for community to be ahead of where the politicians are, and give politicians the permission to influence the Department of Planning* (NGO; H)

Stakeholder Influence

Stakeholders influence healthy built environments by a combination of political, financial, and legal power. Our interviewees believe that each stakeholder is capable of having some influence, which may be positive or negative. Consensus amongst participants was that there was no one wholly negative or positive stakeholder.

> *There's no such thing as someone who only has a positive influence* (D; BE)

The application of government policy, legislation and funding, can have intended and unintended health risks for populations. An example cited was the impact of planning policy on greenfield developments on the urban fringe. This influences driving habits and increases commuting times for motorists. In turn this has adverse impacts on health as long periods spent in cars renders individuals physically inactive and socially isolated – both risk factors for chronic disease. The importance of government decisions was expressed by one built environment professional in the following way:

> *Government plays a big role in the type of development it encourages, continuing to fund major freeways and toll roads…. encouraging people to become car dependent or continue to be car dependent* (G; BE)

State government departments have opportunities to use political influence to support of policies and programs. State and local government also have the unique role of giving consent to developments through which they can potentially influence health outcomes. In NSW the most influential legislation for built environment stakeholders is the Environmental Planning and Assessment Act 1979. This was well recognised by our interviewees:

> *Ultimately the consent authorities really have the power. So State Government, Department of Planning in New South Wales, local councils, the development agencies…* (G; BE)

> *…at the moment the State Government through the Planning Minister and the particular powers that they have adopted… one is Section 3A [under the NSW Planning Act]* (G; BE)

Sustained support by government officials and political parties is required for policy change. This was identified as an opportunity and a potential risk of bureaucratic processes, particularly as there is still much research needed to elucidate the causal links between built environments and health. There is a perception that in the absence of so called 'hard' evidence, policy needs to be supported by ongoing research and evaluation. The need for adequate resources and leadership was expressed by one built environment participant:

> *If you are going to make a change you need to have the resources and the leadership to do it.* (G; BE)

Financial and political influence of developers was also identified. Developers have the ability to place issues on the agendas of governments and communities. In particular, the use of economic levers to promote development means that larger developers have greater negotiating power in the current economic climate. One interviewee noted how economic cycles can increase the leverage of private industry:

> *…there's enormous political power coming from the development industry… in the last two to three years because of the global financial crisis* (A; BE)

The pressure for development also has implications for councils and consent authorities, particularly the loss of future income if a project is rejected. Refusal must be based on strong evidence given that the cost of defending a decision in the NSW Land and Environment Court will inevitably be high. One built environment participant described such a scenario:

> *What grounds do we have to do that and what does that mean in terms of a court challenge? How much is that going to cost? …as crude as it sounds, that's what it comes down to sometimes* (G; BE)

Partnership Enhancement

The development of partnerships is a central component of any strategy to change policy and practice in the built environment sector to promote health. Participants were pragmatic about the capacity of stakeholders to invest in partnerships. They highlighted the positive capacity building and financial benefits of sharing resources and knowledge. Key to this is ensuring that partnerships are not limited, and that connections are encouraged within and between stakeholder organisations.

> *Interagency collaboration provides real opportunities, and cross-agency collaboration provides information sharing opportunities* (NGO; H)

To advance healthy built environments, initiating effective partnerships and fostering enduring relationships are both key elements. This requires long term and consistent interactions amongst stakeholder organisations. Partnerships provide a vehicle for the development of evidence, even when the goals may be outside the traditional scope and practice of a particular organisation. One health participant expressed the need for the commitment to this type of strategy:

> *The issue [is] of engagement and relationships in the long term. You've got to have those. You can't just drop in and out* (G; H)

Interagency collaborations were considered to have major benefits for investment in research and the application of evidence. The Healthy Built Environments Program (HBEP, 2011) in NSW is seen as a positive example by participants. Other opportunities for engagement exist within local government. Councils can evaluate built environment interventions with a health focus. These case studies would ensure that lessons learnt from practical field examples could be shared. The imperative of developing partnerships was expressed in the following statement:

> *It's out of necessity that there has to be interagency collaboration. We need 21st century responses. We can't continue business as usual for conditions that are creations of business as usual. There's nothing so silly as desiring change, but doing things the same way* (NGO; H)

Participants were realistic that knowledge limitations exist by the nature of an organisation's usual scope of responsibility. Accordingly, stakeholders with the financial capacity were seen to have the opportunity to enhance partnerships by the provision of bursaries and scholarships. One health participant noted that collaborative approaches are essential to bridge the gaps in expertise and knowledge:

> *We can't expect the transport people to become health freaks and vice versa. So there has to be a participatory partnership, collaborative approach, there is no other way* (G; H)

Policy Evolution

The development and implementation of policies, including legislation, that promote health in the built environment, was viewed by interviewees as a very powerful strategy. It was considered, however, that regulation should not be used in isolation, as improved knowledge and participation by stakeholders requires different types of tools and motivators to bring about change. One built environment professional explained:

> *I think regulation and good education [need to be used together]; a collaboration of the carrot and the stick can bring the best outcomes probably* (G; BE)

Other tools suggested included memoranda of understanding (MOUs), considered useful to enhance, or be an alternative to legislation. MOUs provide stakeholders with the opportunity to develop consultative partnerships. Other opportunities to adapt and improve policy for an increased health focus include health impact assessment (HIA), sustainability checklists and star rating systems. Two participants expressed these ideas as follows:

> *Legislation is not necessarily the way to go for improved health outcomes. But collaboration on the , on the metro plan or regional strategies* (G; BE)

> *It's a bit like the Green Star stuff. We could have a different coloured star for healthy bio-design* (A; BE)

According to interviewees, evidenced based and informed policy is an important direction in which policy development is increasingly headed. This represents a departure from the past. Some interviewees recalled that a number of policies in the planning and built environment sectors were not always based on reliable research evidence:

> *A criticism of some of the planning policy is that it doesn't appear to be underpinned by strong research* (A; BE)

In contrast, there was a perception that policies from the health sector were more likely to be supported by rigorous scientific inquiry. In addition, health participants stated they would often access scientific, up-to-date evidence. One health participant noted the types of resources consulted for evidence:

> *Mainly through online data bases, journals… through colleagues in each of the jurisdictional forums... But always it comes back to looking at the published research* (G; H)

Policies that include explicit statements about health were considered a logical step to influence health outcomes in sectors where health has little mandatory control. Local environment plans (LEPs – mandatory zoning plans in NSW) were cited as one opportunity to influence healthy built environment policy and practice. This process was encouraged by one built environment participant:

> *…making explicit statements in the assessment of development projects would start getting people to think, this is not just about building houses* (G; BE)

Research Content

There was consensus of the undeniable links between health and the built environment, which was balanced by a concern that many of the causal links remain unclear. Filling the perceived gaps in the evidence was highlighted as important for future research. Whilst research is necessary for knowledge, some participants suggested that there was a body of research evidence that is already available for scrutiny. Perspectives on the application and gathering of available research were captured in the following statements:

> *You can run the research until the cows come home, I actually think a lot of it's simply [about] that implementation* (D; BE)

> *My emphasis would be on systematic reviews… if you want to really be on top of a topic these days you have to know what's out there* (G; H)

The large number of confounding variables in this type of research was believed to create uncertainty for policy makers. Therefore, identifying appropriate study designs and new methods was considered an important hurdle to overcome. One participant recommended that major healthy built environment developments include researching the effectiveness of the development, which needs to be instituted in the early stages of the proposal. Another confirmed the need for outcomes that could elucidate more clearly the causal links to health outcomes:

> *If people can design good studies up front and integrate them into developments at least then that would be a major way forward. The trouble is these are expensive studies to do properly* (G; H)

> *From a health perspective what we need is data and that's research. But it has to be a direct link* (G; H)

The ability to quantify the health benefits in policies from the built environment, and conversely the costs to society from health impacts, were identified priorities for research. Advancing this was thought to be very

powerful for future investments, with a challenge of one built environment participant being to gain support from senior managers where the evidence is not yet clear:

> *Convincing our executive is the challenge, because the cost of a building an infrastructure project is quantifiable. The cost of encouraging people to walk or cycle is very difficult to quantify* (G; BE)

Developing detailed measures that can weight the built environment design factors for their positive or negative health impacts was also recommended. Others suggestions included the use of appropriate methods to evaluate the financial implications and health benefits through cost benefit analysis. This was widely recognised amongst participants as a powerful tool for influencing governments and organisations to encourage investment:

> *…cost benefit work helps us get dollars from [NSW] Treasury to create change* (NGO; H)

Participants noted that to find the evidence to enhance policy, using the internet was the first strategy employed when seeking information. Others accessed journals and library catalogues, whilst some relied on peer referral, and professional newsletters. In some instances, external contractors had been employed to compile the evidence. One stakeholder described their evidence based approach:

> *Well, generally you consult. You seek expert advice. You look at other jurisdictions where it might have worked before so it's evidence-based policy* (G; BE)

Although the need for new and innovative ways of conducting research and developing policies in this field was encouraged, participants also identified that there were risks of failure when policy changes were not accompanied by behaviour change programs:

> *It's not just good enough to build environments we then need behaviour change programs to utilise those built environments* (NGO; H)

Research Facilitation

Interviewees were asked about the best ways to facilitate and disseminate healthy built environments research. Those from the built environment sector identified NSW Health and health professionals as key resources:

> *The health sector obviously has a role to gather data and draw connections or analyse data in terms of the health impacts and the environment and provide advice to other parties* (G; BE)

In contrast however, there was uncertainty about health sector engagement with the built environment beyond the traditional hospital setting. As a result there were some assumptions made about how, when, and where engagement occurs:

> *I presume they [NSW Health] have a lot of power, or do a lot of things, but I'm not that familiar with what they do* (A; BE)

> *The AMA [Australian Medical Association] could get involved in preventative initiatives… I actually don't know enough about the various health professionals* (D; BE)

Opportunities were identified to facilitate research from both public and private sector stakeholders, including the funding of research through a different means. Examples encompassed contributions by organisations to develop health and built environment research centres, targeted scholarships, research and policy positions, and the granting of research funds. Built environment stakeholders highlighted the importance of encouraging research in and between all government portfolios to prevent each group working in isolation:

> *Breaking down those silos and making it a whole of government thing, so it shouldn't really be NSW Health researching, it should be government research* (G; BE)

The sustainability and progression of research require purposive engagement by governments, universities, industry and other related organisations. This again highlights the importance of partnerships:

> *Having partnerships between researchers and development industry, and potentially government agencies…* (G; BE)

DISCUSSION

Our research has identified that stakeholders are aware of the importance of designing and implementing policy and practice that support healthy built environments. They are attempting to work towards this goal within the constraints that govern the functional requirements of their organisations. They consider the clarification and quantification of the links between the built environment and health a research priority. Participants also emphasised the need for establishing and implementing methods such as cost benefit analysis and evaluations of developments to justify past and future policy interventions and practices. This study shows that partnerships are essential for identifying and co-ordinating evidence generating research to inform policy. The findings also demonstrate that key stakeholders acknowledge this need.

Elucidating the causal links between health and the built environment is important for guiding cross disciplinary policy and practice change. Participants were aware that there is a need to identify research methods and measurements necessary to understand these links. This of course is not a new idea as has been identified by those attempting to establish research agendas for health promoting built environments (see for example, Giles-Corti et al., 2010; Owen et al., 2004; Srinivason et al., 2003). Approaches including Geographic Information Systems (GIS) can measure built environment variables, including population density, land use mix, and people's access to recreational facilities. In particular these measures need to contextualise and monitor the positive and negative health effects resulting from policy and planning decisions (Northridge et al., 2003). Importantly, systematic approaches to developing methods are necessary to provide researchers an opportunity to narrow down, and prioritise key features of the built environment (Feng et al., 2010).

Generating research evidence that challenges our understanding of healthy built environments and informs policy makers requires the use of appropriate study designs. In 2006 the American Heart Association even recommending the use of rigorous quasi-experimental evaluations, as a departure from traditional methods, to increase the time of follow up, because of the limitations of cross sectional studies and randomised control trials for built environment interventions (Marcus et al., 2006). Another form of investigation, cost benefit analysis, is believed necessary to support and justify policies and interventions. Colaguri et al (2010) provide an example of a cost benefit analysis for overweight and obesity, which assists us to understand the magnitude of the health issue, and provide impetus for cross disciplinary policy action.

Facilitating research in this arena requires a cross disciplinary approach which will include the development of partnerships to engage built environment and health sector stakeholders. One example in NSW of collaborative links between the built environment and health is the Healthy Built Environments Program (HBEP, 2011). While still evolving, this multifaceted initiative involving the NSW Department of Health and the Faculty of the Built Environment at the University of NSW (Thompson, Whitehead & Capon; 2010) was seen as a positive stakeholder engagement model. Srinivason et.al (2003) suggests other collaborative partnerships and multidisciplinary research approaches to bring together public health and built environment professionals. The benefits of this approach include the sharing of knowledge and improved capacity within and between professionals (Hoehner et.al, 2003). Adding value to such processes is the implementation of cross disciplinary workforce development initiatives, which promote joint working between sectors, and re-establish the dialogue and mutually beneficial links between urban planning and public health professionals (Pilkington et.al, 2008). It is also important to be pragmatic, and acknowledge no one profession such as public health will be familiar with all the technical measurements and procedures used by urban planners (Dobson & Gilroy, 2009). Corburn (2004) suggests that if the two fields work from a shared framework with a common agenda, health disparities will be better addressed.

Evidence based and evidence informed policy is also a strategic direction for all levels of government, whereby research findings must be translated for better policy and practice. This is an important challenge with participants recommending a range of strategies such the development of information portals and knowledge brokering services. These processes should ensure that the lessons learned from scientific inquiry and practical real world examples enhance the evidence base (Kerner, 2006). Indeed, Ward and colleagues (2009) explain that brokering services should assist the development of policy relevant research, and disseminate knowledge in a timely fashion to provide policy makers' time to ensure the evidence can be implemented. Thus within these processes used to facilitate sharing, specific attention to the practicalities of applying the knowledge for policy and practice is necessary (Tucs & Dempster, 2007).

Understanding about the available evidence is also very important. Interviewees spoke about the role that systematic reviews can have in shedding light on issues of concern, and providing a basis for establishing research priorities. Recently Iftekhar and Tapsuwan (2010) recommended meta-analyses be used to quantify the factors that impact on our choice of transportation mode, such as car or public transport. Gebel and others (2007) also highlight the need for consistent and inclusive methods in gathering and

understanding the vast literature. This is essential because the interpretation of such studies will be used to inform policy. From a built environment perspective, this has been lacking, but with the publication of a comprehensive and systematic literature review focused on policy development and research gap identification this has remedied this situation (Kent et al., 2011).

There is a range of tools and approaches that can be used in a collaborative fashion to adapt policy and practice, with legislation and memoranda of understanding within and between stakeholders considered important for maintaining and improving healthy built environments. Various forms of Health Impact Assessment (HIA) were also suggested by our interviewees to enhance this process. HIA utilises a set of tools and processes for evaluating policies and plans for their health impacts (WHO European Centre for Health Policy, 1999). Corburn (2004) suggests that HIA may also encourage a reconnection of urban planning and public health disciplines, in doing so potentially addressing health disparities. Rapid HIA, a much shorter process, may even be appropriate to exist within more formal planning activities (Forsyth et.al, 2008), and can be effective in translating research into practice (AcademyHealth, 2010). HIA also has the benefit of being an inclusive process which encourages the participation of many stakeholders including community members (Roof & Galdon, 2008), and can be used to inject the social determinants of health into planning policy (Corburn & Bhatia, 2007). Of course where collaborative approaches have not had the desired impact on health outcomes such as obesity, legislation may still have a role, particularly for local governments (Allender et al., 2009)

CONCLUSION

Our research supports the view that appropriate technical, valid and reliable measurements of the built environment are required to be consistently included within studies to establish new ways of framing, understanding and addressing human health issues. There is no one individual stakeholder endowed with all the requisite skills and knowledge to do this. Cross-disciplinary collaboration of stakeholders, from government to the community, is essential. Whoever drives the process will have a wide ranging influence on policy and practice for health promoting built environments. Our research highlights the interconnectedness between stakeholders, research, and policy in this field, as well as the need to develop and foster interdisciplinary and cross sectoral partnerships. Without these critical steps, the institutionalisation of healthy built environments in Australian cities faces an uncertain future.

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