

# Investigating place effects on health: an Australasian perspective

Epidemiological investigations into the determinants of population health have long been dominated by a focus on the behaviour of individuals. Ecological analysis (the correlation between the characteristics of groups), has been seen as an epidemiological backwater in examining individual risk factors.<sup>1</sup> This tradition emerged despite the important contributions in the nineteenth century of public health reformers such as Edwin Chadwick and John Snow who recognised the potential for environmental interventions to improve population health.<sup>2</sup> Studies adopting an ecological framework have been criticised for methodological limitations including the ecological fallacy, scale, modifiable areal unit problem and spatial autocorrelation.<sup>3</sup> However, more recently researchers have begun to re-establish the importance of 'place effects' in explaining geographical and social variations in health.<sup>4,5</sup>

This body of work has paid attention to whether particular attributes of places have an effect upon health (contextual effects), independently of individual sociodemographic characteristics (compositional effects). This emphasis on place, as opposed to space, has been important because it stresses that geographical areas are more than just containers of people but rather represent the complexity of meaning and processes associated with place. As Tunstall et al. note:

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**"A 'space' describes where a location is while a 'place' describes what a location is. Place is to space as history is to time and home is to house."**

(Tunstall et al. 2004<sup>3</sup>, p6)

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Disparities in health at various geographical scales – global, regional and local – have been attributed to features of the international, national and local context. For example, research has focused on international forces such as climate change<sup>6</sup> or global economic structural adjustments that perpetuate poverty,<sup>7</sup> national drivers including characteristics of the political economy,<sup>8</sup> or localised (neighbourhood) factors such as area deprivation,<sup>9</sup> access to community resources,<sup>10</sup> or exposure to various environmental disamenities.<sup>11</sup> The evidence for place effects predominantly comes from a range of multilevel analyses that have examined various health outcomes including mortality, morbidity and health-related behaviours.<sup>9</sup> Whilst numerous studies in Australia and New Zealand have described strong and growing geographical inequalities in health in both countries,<sup>12,13</sup> the role of place in explaining health outcomes in these countries remains under researched. From the Australasian studies that have been undertaken there is evidence that various place effects, including neighbourhood access to health service provision,<sup>14</sup> area deprivation,<sup>15,16</sup> social inequality,<sup>17</sup> access to open space,<sup>18,19</sup> social capital,<sup>20,21</sup> and rurality<sup>22</sup> exert an independent effect upon health.

Therefore, there is a growing recognition in the epidemiological literature that where you live, as well as who you are, is integral to understanding the Australasian health landscape.

This theme issue of the Australasian Epidemiologist presents a selection of studies that attempt to further our understanding of some of the mechanisms relating place effects to health outcomes in Australia and New Zealand. A special issue on the theme of 'Place and Health' was prompted by the considerable interest in place effects at the 15<sup>th</sup> Annual Conference of the Australasian Epidemiological Association in Melbourne in September 2006. Many presenters at the conference highlighted how a better understanding of the role of place in explaining health outcomes in Australia and New Zealand has considerable potential for improving health outcomes and reduce health inequalities. This special issue makes some local contributions to these debates and addresses three important critiques of place-based health research.

The first criticism identified in one recent review of the health and place literature, noted that most studies have found significant place effects that are only modest relative to individual characteristics.<sup>23</sup> Therefore, one of the challenges for researchers is to systematically evaluate the importance of place effects relative to individual factors.<sup>24</sup> This important conceptual question is the subject of the first paper in this theme issue by Bentley and Kavanagh.<sup>25</sup> The authors argue that place or neighbourhood effects are likely to have been underrepresented in many studies due to errors in the conceptual models underpinning many analyses. The authors provide a range of suggestions for improving study designs that will provide a better indication of the magnitude of any effect.

The subsequent two papers address a second important criticism which is that many studies of place effects have been data driven, and there has been insufficient theoretical consideration given to the mechanisms linking places to health outcomes. It has been suggested that researchers need to develop "theoretically grounded approaches to measuring aspects of the local physical, service and social environments that lie along the 'chain of causation' from poverty to health outcomes".<sup>24</sup> For example, international concern with the rapidly developing 'obesity epidemic' requires a broader understanding of nutrition that focuses not only upon individual interventions but also on the specific features of places. These characteristics include local access to outlets selling 'healthy' and 'unhealthy' food such as supermarkets, convenience stores and fast food takeaways. The second paper by Lukar Thornton contributes to these debates surrounding 'obesogenic environments' by speculating upon the role of neighbourhood availability of outlets selling fast food, drawing together evidence that access varies according to neighbourhood socioeconomic status.<sup>26</sup> The author calls for further policy-relevant research that evaluates the extent

to which neighbourhood access to fast food outlets influences health outcomes and also considers the regulatory frameworks that have, over time, resulted in differentiated access by neighbourhood deprivation.

In the third paper, Julie Green also calls for greater theoretical understanding of the role of place in explaining health.<sup>27</sup> The author shares some important research experiences in the context of scrutinising the role of literacy in health promotion in two public housing precincts in inner Melbourne. The paper draws attention to the utility of qualitative investigations that are sensitive to an examination of the social, educational and cultural contexts that influence the development of health-related knowledge and in particular to identifying the historical contexts of places that are integral to illuminating many important neighbourhood processes. Individual interviews are advocated as an appropriate approach to capture the “multiple contexts and allow an exploration of the intricacies associated with literacy, learning, education and health” and enrich our understanding of the pathways linking place and health.

A third criticism of the neighbourhoods and health literature is the lack of consideration given to the role of population mobility and migration between places.<sup>1, 24</sup> Issues of migration and mobility provide numerous challenges to researchers including the spread of infectious diseases and exposures to environmental factors in different places over the life course. In the final paper of this theme issue, Miller et al. review the literature on population-mixing and health that has expanded rapidly over the past 20 years, particularly in the UK.<sup>28</sup> Population mixing is a product of migration and mobility, which the authors define as ‘the movement and interaction of people over time and space’. It is suggested that population mixing can have a direct influence on local disease rates through the introduction of infections to susceptible populations. The authors provide a review of the international debates around this theme before identifying a research agenda for additional New Zealand research, a country with particularly high rates of migration and immigration.

In conclusion, there is increasing evidence that places are important in understanding the aetiology of numerous health outcomes. Variations in health between geographical areas are rarely explained solely by differences between the residents of different areas, but also reflect the influence of many features of the places in which people reside. As the authors of the papers in this special issue have highlighted, there are some key priorities for researchers in the field of place-effects research including, notably, investigating the effect of place relative to individual factors, developing theoretically informed measures of places and more consideration of the under researched field of migration and mobility. An improved understanding of each of these factors offers considerable potential for policy development and, as Bentley and Kavanagh note, place effects are potentially more amenable to public health policy interventions than individual effects. Of course, there are additional research priorities that also warrant attention including for example a better understanding of scale effects, identifying the places that matter to different social and demographic groups, and the role of histories of places upon health. Answering these questions and developing our theoretical understanding of place requires interdisciplinary research between epidemiologist, geographers, public health researchers and others. The studies presented in this special issue not only offer opportunities to further our understanding of disease causation, but also highlight the significant potential for place-based policy developments that improves health and reduces health inequalities.

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