# Health geography in New Zealand and Australia: Global integration or Antipodean exceptionalism?

## Abstract

This paper examines the hallmarks of an emergent and distinctive Australian and New Zealand (NZ) heath geography over the last 30 years. Building on an assessment of the early development of the sub-discipline in the two countries, a review of published work reveals the co-presence of local themes alongside connections to more global perspectives associated notably with health behaviour. Further common themes are the influence of year-round exposure to outdoor spaces and the proximity of “blue spaces” to urban centres. However, there are divergences in the evolution of the sub-discipline. A comparison of attendance at the biennial International Medical Geography Symposia (held since 1985) with publications in the journal *Health & Place* reveal differentially globalised characters. A steady flow of international visitors and appointments to New Zealand universities as well as more apparent connections to the wider discipline of geography contrast with more applied geo-spatial and public health connections in Australian health geography.

**Keywords** health geography; medical geography; well-being; sub-disciplinary development; Australia; New Zealand

## Introduction

In this paper we consider what, if anything, is distinctive with regard to the concerns and practice of health geography in New Zealand and Australia. Our focus is largely on the last 30 years, a period that has seen the global emergence of health geography as a dynamic and popular specialism within geography with a strong applied agenda and a growing number of practitioners building on and complementing a legacy of research in medical geography.

Perhaps controversially we will not linger over distinctions between health geography and medical geography (Mayer, 2009; Moon, 2009; Philo, 2016), preferring to see the two as now virtually synonymous. This decision reflects a position we first articulated in Kearns and Moon (2002). At that time we reflected on the extent to which medical and health research by geographers had embraced social theory, shifted to qualitative methods, pursued critical perspectives, refocused on health rather than disease and generally moved towards other hallmarks that might be seen to distinguish health from medical geography. We saw some movement but little to suggest major differentiation. There has subsequently been deeper engagement with developments in social theory (Andrews *et al.*, 2018) as well as a more clearly-evident embrace of the humanities (Atkinson *et al.*, 2015; Foley, 2016). Additional concerns have also emerged: scholarship on global health, non-human health, and critiques of biomedicine and genomics (Brown *et al.*, 2017). While undoubtedly the concerns of what we might term the health geography “project” are now more entrenched (Andrews *et al.*, 2012), in our view health and medical geography have become fluid overlapping categories, the identities of which no longer merit deep debate. In this review, health geography will largely be our preferred term, reflecting its now dominant usage; exceptions will reflect situations where medical geography is historically the more accurate term.

Throughout the review we will recognise, and indeed comment upon, the inter- and intra-disciplinary nature of health geography, noting that its practice extends well beyond the confines of the parent discipline and includes practitioners who would not self-identify as health geographers or indeed as geographers. This inclusive view reflects a decision to see health geography as constituted by scholarship investigating the role played by space and place in relation to health. Some practitioners may work in geography programmes, some may have trained in geography; others may be based in different disciplines or have different training. The common ground is the subject matter. In taking this position, we reflect the increasing interdisciplinarity evident across health research, citation patterns in journal papers, and the often identical approaches and positions taken by those who identify as health geographers and those who do not.

We see this review as a timely opportunity to probe the distinctiveness of health geography in Australia and New Zealand. Recent years have seen the emergence of a strong and active health geography study group within the Institute of Australian Geographers. The special issue of *Geographical Research*, of which this paper forms part, is a testament to the vitality of that group. In New Zealand, a less-formally-constituted group has long held a strong international profile (Ergler *et al.*, 2017), the GeoHealth Laboratory at the University of Canterbury has developed a pre-eminent position in applied geospatial health research, and the leading international conference within the speciality, the International Symposium in Medical Geography (IMGS), is to be held in Queenstown in 2019. These hugely positive developments all speak to our foregoing points: members of the Australian group of health geographers have extensive links outside geography programmes, the GeoHealth Laboratory conducts world-class research that has much in common with Australian research conducted outside geography programmes and which might, under certain traditional definitions, be seen as medical geography; and most IMGS delegates—regardless of university degrees—would see themselves as health geographers notwithstanding the medical nomenclature of the meeting.

In the following section we reflect on the origins of health geography in Australia and New Zealand, tracing differentiated beginnings that have their origins in the wider history of the specialism. We then turn to more recent history to compare the practice of health geography between the two countries over the past 30 years. We consider how this practice has changed, the people and the places involved, and the subject matter that has received attention. From this section we identify themes for more detailed consideration as current (or absent) concerns. We conclude with a brief assessment of the future prospects for the speciality. Throughout we draw on thorough literature searches and base our assessments on published evidence; inevitably some silences are identified and some less-travelled paths. We comment on these in our conclusions and acknowledge that some may feel our interpretations are partial.

## Beginnings: the 1980s and before

Accounts of the history of health geography suggest a characteristic timeline for the speciality originating with exercises in disease mapping, moving on to studies of disease ecology, developing broader concerns with health care, and more recently going beyond a medical model to embrace social and cultural concerns (Barrett, 1986, 2000). In practice this timeline is far from linear and work has continued on each element, with varying emphases in different national contexts. In both Australia and New Zealand it is possible to trace the genesis of academic interest in the field to disease mapping and disease ecology. Different national trajectories are, however, apparent.

In the case of Australia there are clear links to disease ecology and associations with colonial endeavour. Arguably, these links might be traced to Griffith Taylor’s work on the scope for European settlement in Australia and the environmental constraints thought to affect settler health (Barrett, 2000; Taylor, 1919). More clearly significant was the appointment in 1962 of Andrew Learmonth as the first chair of geography at the Australian National University (ANU) (Blunden, 1983). Learmonth had established interests in disease ecology, particularly in the geography of malaria, dating from a lengthy period in India where he had also been heavily engaged in disease mapping. A highly influential figure, both within the speciality and within the wider discipline, he was involved with the International Geographical Union (IGU) Commission on Medical Geography from the early 1950s and became its Chair in 1964 (Lawton & Rees Pryce, 2010). While at ANU, Learmonth continued to publish on India, worked on disease mapping in Australia and presented at IGU congresses (for example, Learmonth, 1966, 1968; Learmonth and Nichols, 1965).

The 1965 membership directory for the Institute of Australian Geographers (IAG) lists just one other self-defining medical geographer apart from Learmonth. Arthur Brownlea has an equal claim to be considered as a pioneering figure in medical geography in Australia and, unlike Learmonth, was Australian born and raised. Following early graduate studies on infectious hepatitis (Brownlea, 1967, 1972) at the University of New England and at Macquarie, he produced influential papers within the disease ecology tradition (Brownlea, 1981; Brownlea & Taylor, 1984) and pioneering work on participatory approaches to health care (Brownlea *et al.*, 1980). Interests in environmental and occupational health led to a later interdisciplinary career outside geography programmes and a focus on topics that, while some way from the core concerns of his original speciality, underpinned a substantial applied contribution to Australian public life.

Learmonth’s career in Australia ended as another medical geographer with a similar background in colonial service and similar interests in disease ecology arrived. Neil McGlashan commenced at the University of Tasmania in March 1970 following a period at the University of Zambia and earlier experience as a schoolteacher and as a district officer in Kenya. He retained research interests in Africa throughout his career but focused substantively on health topics, particularly cancers, sudden infant death and epidemiological methods (Harrington *et al.*, 1975; McGlashan, 1977; McGlashan & Chick, 1974). Although primarily working in the disease ecology tradition, he also embraced a welfarist paradigm through studies of health care provision (McGlashan, 1981). A role as Australian representative on IGU Commission on Medical Geography, along with the production of significant edited monographs (McGlashan, 1972; McGlashan & Blunden, 1986) and journal review papers (McGlashan, 1965, 1980, 1988) ensured that McGlashan became, from the early 1970s, arguably the global face of Australian medical geography although there were other Australian geographers who also contributed to the speciality.

Some of these other key contributors tended not to self-define as medical geographers and went on to forge careers and reputations outside the speciality. Ian Burnley, better known as a population geographer and specialist on urban ethnic segregation, published early papers on spatial variations in suicide and premature mortality (Burnley, 1978; Burnley, 1980; Burnley & McGlashan, 1980) and later worked on the geographies of cancers (Burnley, 1992). Robert Stimson built a substantial career in regional science with its foundations in some of the earliest Australian papers on health care geographies (Stimson, 1980, 1981, 1983). In contrast, other Australian geographers active in medical geography in the early 1980s retained links to the speciality but focussed on highly specialised topics or cognate disciplines. Peter Curson’s focus has been on historical demography and infectious disease epidemics (Curson, 1985, 1993; Curson & McCracken, 2006) while Kevin McCracken’s initial interests in geographical variations in mortality evolved into subsequent work on gerontology and global health (Andrews *et al.,* 2007; Heenan & McCracken, 1972; McCracken, 1981, McCracken & Phillips, 2017). John Connell’s work on traditional healing practices and their co-existence alongside western medicine in the Pacific (for example, Connell, 1981) sits at the intersection of medical geography and development studies and represents a further strand of scholarship near, but not self-identified, as medical geography.

Turning to New Zealand, we confront commentaries indicating little early interest in health/medical geography. The landmark special issue of *Social Science and Medicine* on medical geographic research in Australia and New Zealand (McGlashan, 1980) saw developments (albeit slow) in Australia contrasted with a less-enabling context in New Zealand, where travel funds were held to be less generous and there were fewer connections to the then-dominant tropical interests in medical geography. Brian Heenan, writing earlier and within the New Zealand context, had similarly commented on the limited development of the speciality: ‘it is to be regretted that New Zealand geographers have so far neglected this branch of their discipline’. Indeed apart from two unpublished theses, there appears to be only one previous excursion into the sphere of medical geography; Heenan, 1975; Heenan & McCracken, 1972). Though there is seldom much difference between the two specialities, Richard Bedford considered Heenan, with his significant contributions to understanding geographical variations in mortality in New Zealand, to be a population geographer rather than a medical/health geographer (Bedford, 1999). Bedford did, however, acknowledge that ‘one of Heenan’s major concerns during the 1970s was to stimulate the interest of New Zealand geographers and health care providers in medical geography, then a little developed area of research in this country’ (p.13). In relation to this endeavour, Bedford concluded that ‘it was Heenan who laid the foundations for teaching and research in medical geography in this country’ (p.14).

Bedford’s evidence for assigning founder status to Brian Heenan included mention of his role as a mentor of others. Kevin McCracken and Ross Barnett were cited as former students and, by 2000, rightly recognised as leading medical geographers. While McCracken has already been mentioned, Barnett is, after Heenan, undeniably a pivotal figure in the development of the speciality in New Zealand for three key reasons. First, Barnett had left New Zealand for graduate work in the United States prior to taking up his substantive post at the University of Canterbury. In this way he exemplified what became a typical career trajectory for later leading New Zealand health geographers, beginning with Robin Kearns in the late 1980s and followed in later decades by Janine Wiles, Daniel Exeter, Sarah Lovell and David Conradson. These “returnees” have subsequently made significant contributions in the fields of geographical gerontology (Wiles, 2011), the use of geospatial data (Exeter *et al.,* 2014), critical understandings of health promotion (Lovell *et al.,* 2017), and the character of therapeutic environments (Conradson, 2016). Second, perhaps prompted by his graduate studies in Iowa, Barnett was a key proponent of the turn to more politically aware geographies of health care within the speciality (Barnett & Newton, 1977; Barnett & Sheerin, 1978; Barnett *et al.,* 1980). This move ensured global visibility and also prompted strong applied links to health policy. Third, by leveraging these applied links and his personal visibility within the speciality, and also through the good offices of the Erskine endowment at the University of Canterbury and departmental appointments, Barnett was able to attract other health geographers to Christchurch and catalyse that department’s reputation for health geography. Some, such as Graham Moon, became regular visitors with wider links within New Zealand health geography; others stayed longer (Michael Brown, Jamie Pearce, Clive Sabel) or permanently (Simon Kingham).

As in Australia, it would be remiss to suggest that the practice of medical geography in New Zealand prior to the mid-1980s was limited to members of geography departments Whereas McGlashan had sought to involve Australian medical clinicians in collections and journal special issues, there was early evidence in New Zealand for the importance of links to non-clinical public health intelligence. A significant player was Barry Borman (Borman, 1980; Wigley & Borman, 1980) later to play a role in the early years of the GeoHealth Laboratory and an exemplar of the strong interplay between health/medical geography and applied policy-focussed epidemiology. McGlashan was an advisor on Borman’s PhD thesis and Borman also published with Warwick Armstrong (Armstrong & Borman, 1996), who worked with the leading disease ecologist John Hunter (Mayer, 2009); these links place Borman as New Zealand’s disease ecology counterpart to Barnett’s welfarist health care geography.

Some preliminary conclusions about the distinctiveness of Australian and New Zealand health geography emerge from this survey of early developments. Both were small-scale endeavours but both were well integrated with the evolving global trends in medical geography: Australia primarily with the disease ecology tradition and New Zealand with emerging interests in health care and health policy. These links related to people in that two leading figures in Australia were card-carrying medical geographers with (post) colonial interests in tropical medicine whereas in New Zealand the speciality evolved from cognate subject matter, from graduate experience and from a closer engagement with policy. Australia engaged strongly with medicine and with environmental management, New Zealand with public health and health services policy; both countries exhibited interests in health research methods and techniques. In terms of people identifying as health geographers, the sub-discipline was overwhelmingly male.

## More recent years: a longitudinal overview

How then has Australian and New Zealand health geography developed more recently? Are the similarities and differences evident above still preserved? One way to examine these questions is to compare national presences at the leading conference for health geographers: the IMGS. We have records of all papers and author affiliations presented at this biennial meeting since its inception in 1985 and draw on these to analyse the development of health/medical geography in our two countries of interest up till the present day. We use the IMGS as our focus because it attracts global participation and serves as a focal point for health geography research. It is broad and inclusive in its concerns but at the same time centred on health geography. In these senses it differs from the usually smaller health geography sessions within wider national geography conferences (for example, the Association of American Geographers, the Royal Geographical Society, the IAG or the New Zealand Geographical Society) or from pre- or post-meeting gatherings associated with such national conferences or the IGU. Its breadth also distinguishes it from the more focussed GeoMed meetings with their emphasis on spatial epidemiology.

Figure 1 compares the number of papers delivered by nation over time. The clear implication is that the New Zealand contribution to the conference grew significantly until 2015 while the Australian contribution remained low and relatively static. At only one meeting was there an equal number of papers from the two countries. Otherwise there have always been more papers from New Zealand than from Australia; indeed on four occasions there were no papers led by Australian-based researchers. This contrasting presence suggests that the assumption that New Zealanders have poorer access to travel funds in comparison to Australians (McGlashan, 1980) no longer holds water. For the period covered by the graph, the meeting was always held in either North America or Europe, and New Zealanders were runaway winners of the carbon miles award for conference travel distance. Nor, given that the period of analysis covers periods of austerity in both countries, is relative access to funds at issue. We are drawn to conclude that New Zealand has become rather more engaged with health/medical geography, at least in so far as the speciality is represented at the IMGS.

<<Figure 1 about here>>

To probe further into this disparity in national presence at the IMGS, we need to examine the people and institutions behind the papers. Australians have led 25 papers while New Zealanders have led 123. These papers have involved 16 people from Australian institutions and 49 from New Zealand institutions meaning several people have led papers on multiple occasions. Robin Kearns and Dan Exeter (both Auckland) have each led over ten papers. Ross Barnett (Canterbury) has led nine. Each has also been involved extensively in international collaborations, speaking to their influence beyond New Zealand. Of the next eight frequent flyers, four are or were Auckland-based long-term collaborators of Kearns and three are or were Canterbury-based; just one, Adelaide-based John Glover, had an Australian affiliation. Glover points to a key aspect of Australian involvement in the IMGS: a GIS speciality and not affiliated to a geography programme. Indeed, out of the total of Australian IMGS attendees, just two were affiliated to a geography programme at the time of their IMGS attendances: McGlashan and Amy Griffin.

Patterns of institutional affiliation sustain the picture of health geography in Australia being practised outside geography programmes. Three universities have generated more than four papers: Adelaide, ANU, and Deakin. Although geography is taught at each of these institutions, the papers at the IMGS were not offered by people affiliated to geography programmes. In contrast, New Zealand affiliations are led by Auckland and Canterbury generating nearly 50 papers each, largely from geography programmes though with significant contributions from population health.

To assess whether these differences in the extent of affiliation to a geography programme make any difference with respect to the subject content of papers delivered at the IMGS, we undertook a text analysis of the keywords provided by paper authors. We excluded locational references (Australia, New Zealand) and geographical signifiers (place, geography). Table 1 contrasts the most common keywords. The greater number of keywords for New Zealand papers reflects the larger number of papers. While there are some similarities—concerns with GIS and with health services—there are also evident differences that point to a stronger concern with geospatial science in Australia and a more social focus (social determinants, mental health, children’s health) in New Zealand. Both countries also exhibit concerns with what we might term the obesity nexus, food environments and physical activity.

<<Table 1 about here>>

What emerges clearly from our analysis of papers delivered at the IMGS is the extent to which both New Zealand and (particularly) Australian health geography is framed not only by geography programmes, but also by other disciplines “doing geography”. The IMGS is however a geography conference. It may be that its disciplinary identification discourages some Australian and New Zealand research where spatial variation, location or place remain relevant factors but the discipline itself is less important. To consider this wider body of work we need to step away from the word “geography”. We addressed this challenge by repeating our analysis of people, places, and keywords using all papers submitted to the journal *Health & Place,* since its inception in 1995, that have featured any Australian or New Zealand author affiliations. *Health & Place* was established as an interdisciplinary journal dedicated to the study of all aspects of health and health care in which place or location matters (Moon, 1995). As with our analysis of presences at the IMGS, so we must also acknowledge that our decision to focus on *Health and Place*, does not deny the relevance of other outlets. Our choice reflects the specific focus of *Health and Place* on a broadly-defined health geography unconstrained by discipline. This focus contrasts with more discipline-specific journals where coverage of health geography would be much reduced, and also journals such as *Social Science and Medicine* that step beyond health geography.

Figure 2 compares the numbers of *Health & Place* papers with Australians or New Zealanders among their authors. It is in many ways the mirror image of the IMGS evidence. Until the mid-2000s, the two countries published very similar numbers of papers. Since then both have risen but the number of papers with at least one Australian author has grown markedly. In one sense these increases simply reflect a growth in the number of papers published by the journal but the differential rates of increase suggest the presence of a body of scholarship in Australia that has been particularly attracted to the place-sensitive health-focussed interdisciplinary mission of *Health & Place*. To examine who these people might be, we turn again to a consideration of who is involved and their institutional affiliations.

<<Figure 2 about here>>

Two authors stand out in terms of their involvement in *Health & Place* papers, being implicated in over 20 papers each. One is a New Zealander, Robin Kearns. The next most prolific New Zealand contributors are from Canterbury—Ross Barnett, Simon Kingham, and (counting only his time in New Zealand) Jamie Pearce. All have strong international networks and collaborations with global visibility within health geography. Their authorial involvements are however surpassed by seven Australians of whom one, Billie Giles-Corti, has been involved in more papers than Kearns. The Australians concerned, Kylie Ball, Jo Salmon, Neville Owen, Anna Timperio, David Crawford, and Sarah Foster, form—with Giles-Corti—a prolific interchangeable team producing insightful spatial work on the obesity nexus. Australian success in developing a globally-competitive body of researchers on this topic has driven the Australian presence in *Health & Place*. The parallels between the research conducted by these Australian authors and work at the GeoHealth Laboratory and other centres for health-geographic research are considerable and underline the importance of recognising that high quality health geography is not the preserve of disciplinary-based geography programmes. This conclusion is underlined by a consideration of affiliations. Just nine of the 184 papers with Australian authors had a corresponding author from an Australian geography programme whereas the majority of 83 New Zealand papers were led from geography (including the Canterbury GeoHealth Laboratory).

The subject matter covered in *Health & Place* papers also supports the importance of the obesity nexus, particularly in Australia. Table 3 reports a text analysis identifying the most common words and word groups in the titles and keywords of *Health & Place* papers. The shorter list for Australia reflects more focussed research concerns. Both countries highlighted physical activity research but it was mentioned twice as often as an Australian keyword. Also evident in the listings are concerns for what might be seen as stereotypical Antipodean tropes: rural health and beaches (blue space). The absence of indigenous health among the leading key words and title words is conspicuous. We will return to these themes in the next section.

<<Table 3 about here>>

If the geographic roots of health geographical research in Australia and New Zealand were differentiated, lying respectively in disease ecology and geographies of health care, the past 30 years have seen the emergence of some common ground. Women have become far more prominent and, in both countries, there has been a burgeoning of geographically-sensitive research from a range of disciplines, not just geography. Research on spatial aspects of the obesity nexus, drawing strongly on skills in geo-spatial data analysis, has provided the hallmark of spatially-focused health research in Australia, alongside continued interests in remote and rural communities. Geospatial skills have also ensured continuing productivity for New Zealand health geography via the Canterbury GeoHealth Laboratory and the work of Dan Exeter, Our analysis suggests that, in both Australia and New Zealand, 2018 sees an emphatically firmer identity for geographically-oriented health research than earlier decades. There remain however some clear differences between the practice of health geography in New Zealand and Australia. In Australia, one result of the extensive involvement of researchers from outside geography programmes is that the theoretical currents as well as the methodological diversity embraced within geography at large have been less evident in Australian health research. In general, New Zealanders have pursued a wider range of subject matter, taken up a greater diversity of methodological perspectives and done so to a greater degree from within geography programmes. New Zealand’s isolated character has also meant that arrivals or sustained visits from internationally trained health geographers have left legacies; a central example being the role of Jamie Pearce in establishing Canterbury’s GeoHealth Laboratory.

## Three Trans-Tasman themes

In this section we draw out three themes identified above. Two are presences in published work from Australia and New Zealand. First, we examine research on the obesity nexus: studies focussed on physical activity, diet, obesity itself and initiatives that aim to reduce obesity including those that focus on urban design. Second, we consider work that has considered health within the stereotypical Antipodean context of the great outdoors. Under this somewhat artificial and undoubtedly flexible construct, we group work on remote and rural settings and studies that have centred on the positive and negative consequences of year-round exposure to outdoor living. For our third theme we turn to what we see as a relative silence in current published work in health geography. While there is sensitivity to indigenous people in Australian and New Zealand health geography, there is less evidence of a direct authorial voice. We examine and speculate on underlying reasons for this situation. In each of these three themes we reflect on the degree to which Australian and New Zealand health geography is exceptional, especially in light of wider international scholarship which, through the mobility of ideas, policies and people, constitutes a pervasive influence on local and national-level endeavours.

***Activity, obesity and the walkable city***

This first prominent ‘presence’ in Australian and New Zealand health geography has been driven to a large extent by public health imperatives and the recognition that auto-dominant cities, sedentary lives and poor nutrition are converging on the problem of increasing body-weight and associated risk factors. Specifically, the spectre of rising obesity rates and associated ailments has added impetus to research on geographical dimensions of both physical activity and nutrition.

The availability and design of public open spaces has been a key concern with access to attractive, large spaces associated with higher levels of walking. In a significant body of work Giles-Corti and collaborators have amassed persuasive evidence in favour of creating streetscapes that enhance walking for recreation and transport (see Giles-Cori & Donovan, 2002; Giles-Corti *et al.*, 2005). A particular focus in this interdisciplinary research has been the contention that some population groups experience more challenges than others in accessing amenities, including walkable streets. This concern has led to methodological innovation around assessing the potential of streetscapes to influence health outcomes at a neighbourhood scale (Badland *et al.*, 2010) and the development of GIS-based destination accessibility indices (Witten *et al.*, 2011). The question of the efficacy of urban design features, measured as walkability, upon discernible medical outcomes has also been addressed by geospatial research. Coffee *et al.* (2013), for instance, found that higher walkability in Adelaide was associated with a lower cardiometabolic risk (CMR) but caution that the use of administrative spatial units for analyses of walkability and health outcomes has clear limitations. More generally, Christian *et al.* (2015) have made a case for the efficacy of exposure to particular types of neighbourhood physical environment on childhood outcomes. Identifying the ways some neighbourhoods are more conducive than others to dog walking, and the benefits of this practice for physical activity and social connectedness has been a further important development at the health geography-public health nexus (Cutt *et al.*, 2007; Wood *et al.*, 2017).

Another direction that has attracted attention in both countries is access to healthy food. Working in Melbourne, Ball *et al*. (2009) examined the availability of healthy foods and found that supermarkets selling such goods and produce were only slightly more prevalent in socio-economically advantaged neighbourhoods. Prices, however, favoured those living in disadvantaged areas. In New Zealand, GIS mapping of food outlets by healthiness allowed Pearce and colleagues (2008) to extend understanding of the links between deprivation and inequalities in health. However, it is in Australia that food purchasing opportunities and behaviour have been an especially productive research direction for those working at the nexus of health geography and public health. Thornton *et al.* (2017), for instance, use linear mixed models to investigate associations between individual, neighbourhood, and trip characteristics and distance to food purchase locations. Their work shows that mapping may be necessary but never sufficient: rather survey-based data allow a robust demonstration that many food purchases occur outside what is traditionally considered to be the residential neighbourhood food environment. Further, geospatial studies of retail and other goods and services have perhaps too readily assumed a parity between what is available, accessible and acceptable. Work by Williams *et al.* (2012) has moved, in response to this recognition, to use self-report surveys in addition to environmental data. They found the match between the perceived and objective retail environment was weak and this, they concluded, emphasised the limitations in using perceptions of the environment as a proxy for the objective environment.

The effects of the “qualitative turn” in health geography (Fenton & Baxter, 2016) have reached these applied concerns. At the convergence of children’s, transport, and health geographies, work on children’s commuting patterns made the case for walking school bus initiatives (Collins & Kearns 2001, 2010). Subsequent research engaged more closely with children themselves investigating the loss of freedom on the way to and from school (Kingham & Ussher, 2007; Neuwelt & Kearns, 2006). Closer assessment showed that the gradient of vulnerability is accentuated by the propensity for health-promoting initiatives like walking school buses to develop within middle class suburbs (Collins & Kearns, 2005). In Australia, the broader wellbeing implications of food-related initiatives have been explored in both school contexts (Guitart *et al.*, 2014) and with respect to palliative care (Marsh *et al.*, 2017).

Research in the domains of food and physical activity addressing the “obesity nexus” is by no means particular only to Australia and New Zealand. However, we contend that spatially dispersed urban centres and auto-dominance have, as in the United States, added exceptional impetus to this strand of scholarship. Sympathetic funding agencies and policy imperatives have offered a momentum that has taken this work beyond those trained in geography and into the scope of many for whom ‘geographical’ is a vantage point rather than disciplinary background.

***The great outdoors***

Seasonal variations in health-promoting behaviours such as children’s outdoor play have been noted in New Zealand, with parents less inclined to encourage outdoor activities in wetter, cooler months (Ergler *et al.*, 2016). Generally, however, there is a strong orientation in health-geographic work in Australia and New Zealand towards engaging with “outdoor” landscapes. Kearns and Collins (2000), for instance, trace the origins and transformation of children’s health camps set up in rural settings to provide respite and enhance wellbeing. Early examples of these camps were on the coast, a zone that can generate ambivalent health outcomes as Collins and Kearns (2006) demonstrate, drawing on the example of sun exposure (see also Collins *et al.*, (2006) for school-based sun protection). More recently in Australia there has been work not only on sun but also, heat as another dimension of the “great outdoors” that in moderation is enjoyed but that in excess can lead to stress, exhaustion, and more acute emergencies (Bolitho & Miller, 2017).

Parks and other green spaces are a closer-to-home, albeit often manicured and domesticated, element of the “great outdoors” that have attracted attention for their health-promoting qualities. King *et al.* (2012), for instance, investigate ways in which the size and proximity of parks might be related to the frequency of walking among Australian adults. Drawing on physical activity survey data from across 50 areas of metropolitan Melbourne, an analysis revealed no statistically significant associations between walking frequency and park area within 400 metres of respondents’ homes. Within the broad interdisciplinary health-geographic tradition that prevails in Australia we can also note work on evidence-based, quantifiable, and measurable indicators of public “green spaces” that can be resources for urban planners (Villeneuva *et al.*, 2015).

Beyond cities, rural areas are arguably the most extensive green spaces. An early example of a rural geography of health and health care was McGlashan’s (1981) investigation of the maldistribution of general practitioners in Tasmania. This type of research was arguably driven in part because it was newly possible through developments in computer-aided statistical analysis. A quarter century later geographers were still contributing to understanding rural health workforce issues in Australia, but employing more engaged and in-depth methods. Using a qualitative life history approach, Han and Humphreys (2005), for instance, examined the place of overseas-trained doctors, identifying the factors that influence foreign doctors’ community integration and how these factors affect their intention to stay in Australian rural communities. In earlier work in New Zealand, echoing McGlashan’s (1981) precedent, Barnett (1988) examined the degree to which the arrival of foreign medical graduates alleviated or exacerbated the maldistribution of medical resources.

Following the “qualitative turn”, later work in New Zealand drilled down into the experience of a small number of foreign-trained rural doctors to understand their place-experience and what factors would lead to their retention in rural communities (Kearns *et al.*, 2006). Whereas this body of work was extensive in scope, examining regional patterns and experience within a small number of places, an early exemplar of qualitative health geography in New Zealand had a very singular focus. In a series of publications, Kearns examined the micro politics and community processes in the historically significant Hokianga district (1991, 1997a, 1997b). The key point in this work is that rurality matters in the provision of health services. Indeed, this point was shown to be a key consideration underlying the locations of early asylums (Moon *et al.*, 2016); it also matters in health experience and the efficacy of health promotion programmes. The point is also illustrated in work by Griffin and colleagues (2015) who showed that smokers in rural New Zealand were less likely to use a national “quitline”, even after controlling for confounding factors.

Beyond green (and sometime brown) spaces, there is water. Bodies of water which have been coded as “blue spaces” have been more recent arrivals to the interpretive and analytical consideration of geographers. Research—both geo-spatially and culturally-inspired—has begun to reveal the ways rivers, lakes, and the sea can promote positive mental and physical health with exposure to, or views of, water places offering relaxation, recreation, and social connections including memories. Pearson *et al.* (2017) for instance, show that for children, schools are potentially important settings to promote equitable blue space exposures. Coastal locations have also been linked to strongly positive valences of wellbeing with islands discussed as therapeutic settings. An example is the investigation by Kearns *et al.* (2014) of Rotoroa Island near Auckland, which served as a site of sanctuary and reform for recidivist alcoholics. While coastal locations have long attracted older migrants (e.g., Drysdale, 1991), they are also settings for aging in place. Coleman and Kearns (2015) demonstrate that even when engagement with beach-based activity is no longer possible due to infirmity, the mere view of the sea and coastline can be vital for older people’s sense of wellbeing and continuity with the past. Further, the therapeutic qualities of the coast lay behind the location of one of New Zealand’s prominent early asylums (Joseph *et al.*, 2009).

This collection of research concerns has engaged proportionately more health geographers with a disciplinary background, given the quest to understanding the on-the-ground places. More year-round engagement with outdoor settings than in much of the Northern Hemisphere, and an embrace of theory—including that developed beyond geography in this hemisphere (e.g., Duff (2016))—has led to especially New Zealand health geographers making a distinctive contribution in this domain.

***Silent voices***

Both a gap and an opportunity for health geography in Australia and New Zealand is engagement with indigenous voices. While there are numerous studies *on* or *about* the health status of Aboriginal people or Māori, work by health geographers *with* members of these original peoples is rarer. In other words, ethnicity has invariably been a category from which to develop understandings of disparities in health and wellbeing (see Barnett & Malcolm (2010) on hospital admissions and Barnett *et al.* (2004, 2005), and Moon *et al.* (2010) on tobacco consumption) rather than the basis for experiential or participatory engagement. Claims that there needs to be closer engagement *with* indigenous people and that our research practices need to be modified accordingly were made by geographers in 1995 in the first issue of *Health & Place.* Here Dyck and Kearns (1995) advocated for “culturally safe geographies of health and healing”. Informed by the Treaty of Waitangi, partnership is a key principle of cultural safety ideas which arose within nursing education (Wepa, 2016).

A relatively uncommon example of work expressing these culturally safe values and investigating links between a Māori worldview, health beliefs, and environmental qualities is that by Panelli and Tipa (2007). Significantly this authorship team was a Māori-Pākehā partnership. They argued that research on well-being has been dominated by perspectives that stem from Western, health-science notions of an individual’s health and psychological development. This knowledge-lineage, they claim, needs to be challenged through an emerging sensitivity to the cultural and place-specific contexts influencing the health and well-being of population groups across varied environments. In Australia the relationships between Indigenous health status and the practice of "caring for country” has been explored by multi-disciplinary health researchers. There are challenges, however, when traditional beliefs and practices meet the western medical worldview (Burgess *et al.*, 2009). One challenge is conceptual: the notion of “environment” implies, literally, “surroundings”, whereas indigenous people are invariably committed, in the first instance, to the sacredness of specific places. These sites of belonging are more than the sum of their (environmental) parts and are rather expressed as turangawaewae (Māori) or Country (Aboriginal). Panelli and Tipa’s (2007, 2009) achievement is developing a particularly Australian/New Zealand focus on place-based understanding of wellbeing that includes the complex intersection of people and ‘nature–culture’ relations. This depth of engagement begins to address the challenge posed over three decades earlier by Evelyn Stokes (1987): to seek and support a Māori geography rather than geographies of Māori. As Kearns and Panelli (2006, p.324) remarked, ‘behind this apparent word play lay a profound *wero* (challenge): to engage with Māori aspirations and concerns, using appropriate methodologies’ rather than simply analyse data that ‘carries the spectre of colonial sensibility’.

To some extent, perhaps, the explanation for this relative silence within health geography may relate to the dearth of Māori and Aboriginal health geographers. Yet, as pioneering Māori geographer Brian Murton said, ‘Māori conceptualize the body as an arbiter of interaction with the environment’. There would therefore seem to be rich potential to seek out fresh research partnerships and address embodied understandings of environment and wellbeing. In another uncommon exploration of health determinants from a partnership ethic, Kearns *et al*. (2009) consider the links between place, “race”, and public health from their respective and collective vantage points as Māori and Pākehā (settler) researchers. They propose that racism impacts upon the health of Māori through both the systematic alienation of indigenous lands and subsequent degradation of ecosystems that undermine traditional economies. This view complements that by Yule (2016), who speculates on the effects of colonisation on Aboriginal health. To him, a person’s social and emotional wellbeing is invariably influenced by policies and past events, both within a person’s life course and in past generations. He argues that the health and wellbeing of the first peoples of Australia, has been deeply harmed by dispossession and colonisation, and the subsequent loss of lands, language, and culture. In this way he signals the need for health geography to follow examples from elsewhere in geography (see for example Coombes *et al.,* 2012, 2013, 2014)and engage more fully with indigenous perspectives.

**Conclusion**

Health geographic work in Australia and New Zealand at the end of second decade of the twenty-first century finds itself in good health. In both countries, though there is a need for continued progress, it is a far less male dominated profession than was once the case. It is an established specialism in New Zealand geography programmes and in a position of strength in population health. Its international academic reputation is high and is matched by very significant impacts on New Zealand public health through involvement with national committees (for example, Public Health Advisory Committee, 2010), the development of key indicators, the evaluation of interventions and the actions of the GeoHealth Laboratory. Significant contributions have been made to cultural and political approaches to health research as well as to more epidemiological approaches. In Australia health geographic work is largely practised outside geography programmes but has successfully ridden, indeed led, the global wave of research in population health on food environments, physical activity, and urban design. This strength has been achieved in often contrary economic and social circumstances. Its maintenance will demand continued upkeep of strong international networks, institutional support, close links with government and other funders and succession planning. The enduring significance of these achievements outside of their respective national contexts may be reliant on two outcomes: first, the degree to which the embrace of international influences such the critical turn in health geography (Brown *et al.*, 2017) are embraced or maintained; and, second, the extent to which health-geographic research is regarded as relevant by wider policy-informed “projects” such as the quest for a population health perspective.

We acknowledge that our review is limited by our respective vantage points and the choices that we have made in crafting a concise review. We have based our arguments on the empirical evidence that emerged from the published literature. Nonetheless we recognise that our consideration of “silences”, could equally have addressed other groups whose voices have only been heard in a limited way: women in general (but see Lovell *et al.*, 2007); migrants (for example, Lawrence *et al.*, 2005), older people (Wiles *et al.*, 2012), and those with stigmatised illnesses (Myers, 2010). There have also been some research directions on which we could equally have focussed attention. One such is medical tourism. With its engagement with movement, globalisation, medical services and health experience, this is clearly an emphatically geographical concern. A key contributor to this endeavour has been Connell (2006, 2011, 2014, 2015) whose Australian-based scholarship reaching out into the Asia-Pacific region has opened horizons that other geographers have pursued and extended (for example, Crooks *et al.*, 2010). Geographies of health care work are a related issues that also warrant mention (Connell & Walton-Roberts, 2015).

Research challenges continue to emerge. Both Australia and New Zealand, for instance, now have large and long-standing Pasifika populations; research on the health geographies of peoples of Pacific origin both in traditional homelands and in cities of intergenerational settlement is occurring but warrants more attention (for an exception see Cheer & Kearns, 2002). So too in does the health of more recent in-migrating people from southern Europe, the Middle East and East Asia. The demographic mix of larger cities like Sydney, Melbourne, and Auckland is now hyper-diverse. Population change is occurring faster than either changes in funding or philosophies of health service and delivery. Research agendas are also being overtaken by these changes; engaging with health dimensions of newly globalised population geographies will be an important research direction.

What of new directions in conceptual terms? Just as the emphasis on health was an outgrowth, and enlargement, of geographers’ longstanding interests in medical issues (Kearns & Moon 2002), so too we see a developing focus on wellbeing as a positive frontier within the specialty. Interestingly, the most highly cited paper in the *New Zealand Geographer* is on wellbeing and by two contributors to a 2006 IGU Health and Environment Commission meeting on Auckland’s Waiheke Island (Fleuret & Atkinson, 2006). In the years since, we observe a mounting interest in this concept within both policy and the academy on both sides of the Tasman (see McLeod, 2017; Morrison, 2011).

To close, can we observe global integration or an Antipodean exceptionalism in health geography? Our answer has to be a measure of each. Given the globally interconnected research economy characterised by flows of people, publications, and perspectives there is seldom much research that is not also undertaken in some form elsewhere. Hence, there is no health geography that is exceptional in the sense of unique. What there is, however, is exceptional—as in “excellent”—types of scholarship emerging in both countries, influenced by both the particularities of policy and the geographies of everyday life, but always infused with the constitutive influences of the academy-at-large.

We have indicated two strengths and one silence that constitute themes reflecting a particularity of the antipodean context, and cultural if not policy imperatives. To this extent, health geography in Australia and New Zealand is exceptional in both the senses: specificity and superlative. We have also observed global integration through mobilities of theory and the influence of visitors and sustained collaborations, our own included. Although commonly considered together—especially from afar—Australia and New Zealand are in many ways also starkly different countries. This difference is less so in scholarship, although nuanced differences exist. However, as Laurie (2004) pointed out, national differences—in research funding, in research cultures, in teaching loads—subtly yet potently shape the type, location and quantity of research emanating from particular countries.

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Figure 1: Papers delivered at the IMGS over time



Figure 2: Papers published in *Health & Place* over time



Table 1: Most common keywords associated with papers at IMGS

|  |  |
| --- | --- |
| Australia | New Zealand |
| GISenvironment / pollutionfood environmentshealth servicesspatial analysisspatial epidemiology | GISpopulation healthphysical activitymental healthhealth serviceshealth caresocial determinantschildren’s healthurban health |

Table 3: Most common keywords and title words from papers in *Health & Place*

|  |  |
| --- | --- |
| Australia | New Zealand |
| physical activityfood studybuilt environmentrural healthsocial capitalmental healthgeographic informationindependent mobility | children’s healthphysical activitymental healthhealth caredeprivationalcoholmental healthphysical activitybuilt environmentwellbeingisland healthblue spaceurban design |