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Cities and health: an evolving global conversation

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Abstract

The Cities and Health journal sees its launch in 2017. Looking back over half a century of growth and global expansion in economic activity, although there have been societal benefits, negative impacts are starting to take their toll on planetary resources and human health. As we enter what is being termed The Anthropocene, the city is becoming the preferred habitat for humanity. The imprint of city lifestyles, in terms of both resource use and waste, is found across the globe, threatening the ecosystem services that support our health. In cities themselves, due to risks and challenges to health, we are witnessing a rise in non-communicable disease, twinned with infectious disease for the many who live increasingly in informal or slum urban development. High levels of health inequity are found within urban populations. The resultant health problems are placing increasing strain on health services, with pressure only set to increase due to continuing urbanization and ageing populations. Evidence increasingly demonstrates that many aspects of city and neighbourhood form, urban and transport design, and residential environments play an important role in mediating health and health equity outcomes. The new journal Cities & Health is being launched to support political, academic and technical leadership and transdisciplinarity in this field. For this endeavor we will need to re-examine the nature of evidence required before we act; to explore how academics, policy-makers, practitioners and communities can best collaborate using the city as a laboratory for change; and to develop capacity building for healthier place-making at professional and community level.

Cities and health: an evolving global conversation

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The Cities and Health journal sees its launch in 2017. The last half-century has been remarkable in many ways. Over that period the direction of travel for what many see as mainstream human development and culture is leading to global concern (WEF 2017), and in many quarters - alarm. Attention is specifically alighting on two issues. First humanity's relationship to, and impact on, its global habitat. Second, the issue of humanity's relationship to itself; a widening gap, more correctly a gulf, between those who have political and financial agency and those who do not.

Fifty years ago the impacts from what were seen as positive aspects of economic development, such as the 'age of mass consumption', lay largely in the future (Frank 1970). World population was 3.3bn with 36% living in cities. We were some ten years before Habitat I and 20 years before the launch of the WHO Healthy Cities programme. Initially, these 50 years saw high-income countries enjoying a period of both peace and economic expansion. The rest of the world was less fortunate with many left in poverty, but even here there was an extended period of decolonisation and self-determination. In health, people from countries at all income levels benefited from advances in water and sanitation, nutrition and vaccination, and relatively easily won health outcomes through developments in antibiotics, diagnostics and treatments.

Seeds of change

But the seeds of what has now led to a profound change were being sown, culminating in major disruptions in what was seen as the certainty of continual societal progress and relative stability. Throughout the world, local and national economies became increasingly absorbed into an unprecedented and fluid global system. The mantra of economic growth spread as a common aim for peoples and Governments across this expanding global system, in the belief that this would be key to tackling ill health, poverty, habitat destruction and just about any other problem we could throw at it. However, this 'Great Acceleration' of a resource intensive form of global economic growth allowed human induced flows of materials and energy to rival, and then overtake, those of natural systems, resulting in impacts so profound that we now refer to the modern age as The Anthropocene (Steffen, Crutzen & McNeill 2007).

Indicators of the negative consequences of the global economic system began to be translated into international concerns around the loss of rainforest, pollution

of rivers and seas, ocean acidification, ozone depletion, desertification, species extinctions – and of course, climate change. These led to the establishment of 'sustainable development' as the normative goal for accommodating economic growth with the conservation of natural and social systems (Brundtland 1987), and then to the first Earth Summit in 1992, initiating global conventions on biodiversity and climate change.

Turning to health

The concept of sustainability underlines the physical limitation of global ecosystems, and highlights the need to utilise science, technology and policy to tackle these great challenges. Armed with concepts such as a 'safe operating space for humanity' (Rockström et al. 2009), 'planetary boundaries' (Steffen et al., 2015) and 'ecosystem services' (MEA 2005) we have some valuable tools. We know that loss of biodiversity presents us with many health challenges (Romanelli 2015). However, we now are faced, in many cases, with a corollary to these environmental concerns; challenges and risks for human population health (Hancock, Spady and Soskolne, 2015; Whitmee et al, 2015), for example, the multiple threats to health posed by climate change (WHO UNFCCC 2015).

However, whilst keeping sustainability centrally in our sights, it must be twinned with the concern for human health. In cities in high-income countries we have seen the rise of so-called 'intractable' non-communicable diseases, as well as injuries (intentional and unintentional) and growing rates of mental health and substance abuse issues, placing an increasing demand on health systems (Wang et al. 2016). We are now seeing these same conditions increasing in cities in middle and low-income countries, where urbanization and urban growth are dramatically restructuring the nature of cities. Here non-communicable diseases occur alongside chronic infectious diseases such as HIV and basic, acute infectious diseases arising from poor sanitation in informal settlements surrounding these cities: multi-morbidity. There are also, yet to be fully explored, epidemiological and immunological interactions between communicable and non-communicable diseases, and urban, particularly informal, exposures (Oni et al. 2016a). Increasingly we are witnessing the wealthy and the poor sharing certain common spaces in the city but largely housed apart in apartheid spaces as if there were socially invisible – but sometimes all too physically visible and real – with walled-off estates inside cities (Ezeh A et al, 2017; Lilford RJ et al, 2017).

The most significant concern here is of rising social and economic inequality on health. As the WHO Commission on the Social Determinants of Health (WHO 2008a) noted, "Social injustice is killing people on a grand scale" (p26); which is acutely apparent in cities (WHO and UN Habitat, 2010). In some low-income countries, the majority of urban dwellers live in informal settlements that lack access to basic services or public amenities, expose residents to greater health risk, and where health-care systems are unable to provide affordable or comprehensive cover (Oni et al. 2016a p722, Lim et al. 2016). Therefore we do

not just need to provide a 'safe space' for humanity, but also a 'just space' (Raworth, 2012).

Where we are now?

So here we are in 2017: World population stands close to 7.5bn and almost 55% of people now live in cities. Projections indicate that total city population will rise from its current 4bn to over 6bn (i.e. up to 66%) by 2050 (UN 2015a). Fifty years ago there were only three mega-cities, those with more than 10m inhabitants; Tokyo, Osaka and New York-Newark. Today there are 28 megacities and by 2030 there will be 41 (UN 2015a). Much of the predicted urban population growth will be informal in nature. Most will be accommodated in the fringes and interstices of small and medium-sized cities in middle and low-income countries (Laros & Jones 2014).

The 'urban' is truly now the predominant habitat for humanity. Villages, towns, cities and mega-cities represent the phenomenal scale of collective human colony creation, ever-larger manifestations of created human habitat; some is planned and designed, but much is informal and unmanaged. We need to involve ourselves with an innovative city futures agenda, so as not to replicate and further embed our problems.

In the dominant globalized system, capital and economic activity has become detached from place. Divorced from locality, this has allowed positive impacts for health and well-being to become increasingly concentrated and restricted to small pockets of the world population. Detrimental impacts too can be found in a concentrated form, in modern ghettos, slums and informal settlements. Rosy looking health statistics at national or city level can hide the effect of this socioeconomic inequality within urban areas (Rydin et al. 2012).

At a regional level, fewer cities retain the once essential symbiotic connection to their surrounding 'hinterland'. Resources are drawn from across the globe and the footprint of waste from city consumption is widely distributed across all terrestrial and marine biomes. As an example, persistent human-made pollutants are damaging the health of people living well away from all industrial sources, such as among the Inuit (Singh et al. 2013), and have also been found in the deepest of ocean trenches (Jamieson et al 2017).

Cities themselves are hotspots for high levels of man-made air pollution, noise and heat island effects, whilst also lacking green space and support for physical activity (Nieuwenhuijsen 2016). Ineffective or absent urban and transport planning creates and exacerbates the risks and challenges to health (Grant and Braubach 2010; Barton 2009), as does a lack of attention in strategic city planning of the essential links between spatial planning and available modal transport options for citizens (Frank, Giles-Corti &Ewing 2016). A recent study estimated that 20% of mortality may be premature because of poor urban management and pollution in Barcelona (Mueller et al 2017). Novel concepts such as car-free cities have been proposed as a possible solution but may need a

long time to be accepted and implemented (Nieuwenhuijsen and Khreis 2016), though there are many examples now of 'car-free' housing development in high density cities. The concepts of 'big data' and 'smart cities' also hold some potential for securing health improvements. But in the short term, breaking down the silos between urban planning, transport planning, environment and public health is needed to address the severe and avoidable health impacts (Nieuwenhuijsen 2016) and reduce health inequity.

In addition to the increasing urbanization of populations across the globe, we are also experiencing a global ageing of the population; a trend that is accelerating. By 2050, the global population aged 60 years or over is projected to more than double that of 2015, reaching nearly 2.1 billion, and the number of people aged 80 and over is growing even faster (UN, 2015b). This is, of course, a success story for human health but the resulting demographic profile, where the ageing population will increasingly exceed that of children and adolescents, has many implications for the planning, design and management of our cities and the demands on its infrastructure and services, not to mention the social structures that frame and sustain urban living. There are also marked social inequalities in life expectancy, and critically in disability-free life expectancy, in later life (Jagger and Robine 2011).

The good news is that 'green infrastructure', making its presence felt at an array of scales, has a sweeping influence on the myriad ecosystem services essential to health, including mortality, mental health and birth outcomes (Ward Thompson et al., 2012; Coutts and Hahn 2015, WHO 2016a, Nieuwenhuijsen et al 2017). Smart design that incorporates urban nature can build in features that can promote health, such as better food and food growing environments, urban greening, flood risk protection, micro-climate amelioration and activity supporting greenways (Barton et al 2010).

We have the ability to control our urban habitat; and human and planetary health needs to be at the forefront of city design.

Urban research and public health

The growing concerns over health, lifestyles and the built environment are reflected in an accelerating pace of research within earlier discourse (such as Dannenberg, et al. 2003; Jackson 2003; Fudge 2003) and more recent broad-ranging contributions (Barton et al. 2015). An ongoing re-engagement between urban planning and public health is being acknowledged and even celebrated (Jackson, Dannenberg, and Frumkin 2013). New research outcomes and national funding programmes are emerging. Examples include the NIHR Public Health programme in the UK and research funded by the Prevention and Public Health Fund and Robert Wood Johnson Foundation in the US. To this we can now add the international dimension through the Wellcome Trust's 'Our Planet, Our Health' programme. Recently we have also seen a re-alignment of global conversations such as Habitat III and the Sustainable Development Goals in an attempt to concentrate our focus on people's needs and cities. Happily, at least in

some quarters, we are now seeing challenges to the discourse of economic growth as a *'salve elixir'*, a universal balm for any problem.

Public health too is starting to grapple with a new reality. Modernity itself contains elements that are 'potentially harmful to health and well-being and inimical to social equity' yet is ill equipped to find the solutions (Hanlon et al 2012 p313). This is the context in which ecological public health, as a theory, a movement and a body of practice has been long emerging (Chu & Simpson, Rob 1994; Lang & Rayner 2012). Public health needs to add a fourth arm to its traditional remit of 'promoting and protecting health and well-being, preventing ill-health and prolonging life': it needs to actually **create health**. Public health needs to explore and understand how we can best create the conditions for good health and ensure humans can flourish. Urban designers are grappling with a similar concept when they start to define their term 'liveability'. Importantly, we also need to ensure equitable access to such health-creating conditions. We need to develop new communities of practice to grapple with the complex issues whose causes lie beyond the traditional remit of the health sector. We will need the knowledge, drive and competencies from many sectors to join together for this fourth arm to protect, promote and create urban health.

Cities matter

As the world confronts multiple crises for global health, cities present themselves as the most fruitful of loci for rethinking approaches to disease and injury prevention whilst simultaneously investing in the conditions that create health. Cities matter. Arguably whilst nation states prevaricate and postulate on the global stage, cities have been getting on with it (Acuto 2013). Many are showing leadership and joining together to take action in areas such as climate change, sustainability and resilience. For example, the WHO Healthy Cities initiative is more than 30 years old and exists in over 1,000 cities worldwide, as documented in a very recent comprehensive book (de Leeuw and Simos, 2017). The healthy city initiative highlights the recognition that a 'place-based' approach to health is needed, and indeed the network has a long-standing programme of using urban planning for health (Grant 2015). Outside of the formal 'healthy city' initiative, the WHO has recognised the merit of city-scale work through the work associated with publications such as its Guide to Age-Friendly Cities (2007), which considers the global needs of an ageing urban society and Urban Heart (WHO 2010), an urban health equity tool.

With its presence at, and input to, both the Paris Agreement on Climate Change and the UN-HABITAT III conference held in Quito in late 2016, the WHO is showing an accelerated interest in ensuring that health is embedded within the emerging new urban agenda (WHO 2016b, WHO 2017).

Over the next decade we will be able to judge the degree to which Sustainable Development Goal 11 'Sustainable cities and communities', with its exclusive urban focus, can achieve co-benefits with Sustainable Development Goal 3 'Good health and well-being', with its thirteen health targets. There is a risk that

without the necessary trans-disciplinary understanding (Lawrence 2015), the mesmerizing draw of reductionism could stunt the emergence of mutually reinforcing solutions (Caprotti et al. 2017). However, there are rich prizes to be won for health and health system viability if research and practice join together to create healthier urban habitats, especially in the rapidly urbanizing areas of low and middle-income countries. There will be additional rewards if we can show the United Nations how to take effective action in urban areas, based on its decision to tackle non-communicable diseases from a human rights perspective.

City governance and leadership

If cities matter, then city leadership is also crucial for health. This includes leadership for city regions, which respects the ecological and anthropological hinterlands of urban areas. On the international stage, mayors and city leaders are joining networks of shared interest, including the C40 Cities, 100 Resilient Cities and networks initiated by Bloomberg Philanthropies that allow them to make commitments and progress that is not dependent on national partners.

Liveability a building block of the 'good' city, starts in the 'neighbourhood', that iconic urban component; where people and place come together. It exemplifies the seat of health and place (Barton, Grant and Guise 2010). The neighbourhood is people-centered; it is resonant with local cultural, social, functional and administrative overtones. For young and old people, people with mobility impairments and those tied to the home for any number of reasons, the neighbourhood is their habitat within the city (Brookfield et al., 2017). Better attention to the design, in new build and retrofit, of neighbourhood form and detail (Ward Thompson, 2002; Sugiyama et al., 2009; Ward Thompson et al. 2014) and of the neighbourhood as a building block to city functioning, may well hold the key to urban health (Barton, Grant and Guise 2010). In terms of health equity, easy access to, and engagement with, good quality local green space and natural environments in deprived urban locations can offer support for marginalized populations in terms of place identity, wellbeing and quality of life (Ward Thompson et al., 2016; Ward Thompson et al. 2013).

It is essential that we develop effective and innovative models for placed-based leadership at both city and neighbourhood level and better understand the drivers and conditions for leadership in healthier place-making. This should include recognising the role not just of strong political leadership, but also leadership from the community, from health professions and key sectors such as the development industry and housing (Hambleton 2014). The economics involved in creating place need challenging too. We can no longer afford to build places that increase the dependence of the residents on health service and social care provision over the whole of their life-course (Curl et al., 2016).

There are glimmers of fresh thinking in the economics of place-making, and new financial models to incentivise healthier place-making. The cost to the health budget of building places that undermine health is starting to be discussed (Grant and Drane 2017; Garrett & Burris 2015). Other examples include the fact

that there have been striking positive health outcomes associated with participatory budgeting in Brazil (Vlahov & Caiaffa 2013). New ways of working will need encouragement and support from national governments (Newton and Newman 2015). The so-called urban advantage, the health benefits of living in urban as opposed to rural areas, 'has to be actively created and maintained through policy interventions' (Rydin at al. 2012 p2079). The call for a 'health in all policies' approach offers a potential framework for tackling such questions (de Leeuw et al. 2014; de Leeuw Clavier & Peters 2015).

What's to be done?

We believe that research in the fields of cities and population health, health science, health policy and health funding is not yet fulfilling its true potential. Convention, risk-aversion and 'business as usual', inherent in university-based research and city governance, has allowed contradictory and short-term approaches to dominate. For example, if we know there are critical spatial determinants to disease and wellbeing, then why don't we adopt those 'who create place' into the wider public health workforce by ensuring relevant training in those professions? Similarly, if we know that prolonging life increases life-years 'with disability' for economically marginalized groups, then why isn't health-adjusted life expectancy the universal indicator of city function? Furthermore, if we know that health and social care budgets are under strain, then why can't we shift our gaze away from continually evaluating and developing new treatment interventions and towards creating environments that support wellbeing across the population?

These and other complexities involved with understanding and acting on urban health remain a key challenge for city leaders and for all those involved in public health and city planning. The spatial determinants of health have been communicated in a form readily assimilated by those who plan and design the built environment (Barton & Grant 2006), yet health impact appraisal of spatial policy and plans as a design tool for healthier places is not accepted as routine business. We must learn to work with this complexity, building collaborative tools and processes for 'city impact' and implementation that go beyond using just traditional 'bread and butter' concepts of disease pathways, causal chains and treatment regimes (Morris et al, 2006; Grant & Barton 2013). In the world of cities and health we increasingly find ourselves immersed in 'disease pictures' (Rosenberg 2002) and causal webs (Russo 2011) and multi-causality (Krieger 1994) where unintended consequences, natural experiments, 'confounders and contamination' abound. Built environment designers with their creative processes can not necessarily provide the perfect solution, but they are trained in studio-based research methods that enable them to take a wicked problem and distill and communicate the 'least wrong' solution (Alexiou & Zamenopoulos 2008; Portugali & Stolk 2016). A spatially aware public health praxis will need those skills.

We will need to move away from the risk-averse evidence hierarchy used in public health with its medical provenance, and agree on a new approach to evidence that supports creative city change and experimentation. The city is a multi-causal, complex adaptive system. For city-level work we will have to stop looking for randomized controlled trial evidence to see, for example, whether an obesity intervention works; but instead ask, including of actors and stakeholders *in vivo*, whether it contributes to the observed change or hinders it (Rutter & Glonti 2016). Inherent in the medical model too is an inevitable innovation lag from science to policy, from policy to action (WHO 2008b). This understandably careful route to progress, when combined with entrenched interests outside the health sector, can put an unnecessary brake on change, when we already know in urban design what not to do. With the urgency and universal nature of the city-health problem, we need new ways of influencing policy makers through communication and dialogue across many actors and institutions in society. It took 50 years from proof that smoking caused cancer (Doll & Hill 1950) until the WHO Framework Convention on Tobacco Control. Cities can be our laboratories for change, but not if we have to wait 50 years from conclusive dose-response evidence for cycling and walking (Kelly et al. 2014) and health impact of active transport (Mueller at al. 2015) to see a transformation in mainstream city design.

For this to happen the health sector will have to create the enabling structures and mechanisms for intersectoral action. Investing in environmental interventions pays off; it will promote health and health equity and can reduce the economic burden on the health sector through a reduction in the transfer of hidden costs from other sectors (Prüss-Ustün, 2016).

Transdisciplinary inquiry provides us with a new way of doing and applying 'science', developing a new collaborative field for cities and health. The conceptual and institutional barriers to transdisciplinary inquiry in this emergent field are considerable, involving not just formal education and personal and institutional motives in academic institutions but also funding agencies, and policy and budgetary silos (Lawrence 2015). Nevertheless, with potentially significant outcomes for population health and health service viability, there are strong incentives here for developing transdisciplinary processes. Taking just two relevant examples; the value of transdisciplinary working for urban population health is discussed by Lawrence (2010) in relation to housing, and by Lake, Townshend and Alvanides (2010) with regard to obesity.

This transdisciplinary science will need to harness the inspiring innovation and change that leading cities are now demonstrating. With innovation comes risk, but our research protocols rarely properly assess the risk of harm that results from doing nothing, or waiting decades until verifiable 'proof' emerges of the benefits of certain interventions. Indeed, if we never try, we will never know. We need to go beyond the 'natural experiment' (MRC 2006) and recognize the emergence of hybrid creative design-led innovations for public health (Gehl 2013). Instead of dismissing these as one-off 'case studies', we should consider them as potential pioneer projects and attempt to assess the conditions from

which they emerged, the scope for replicability and the potential for longitudinal multi-city trials.

A key aspiration for this journal is to support knowledge governance and the co-production of knowledge in this field.

In many cities infectious diseases remain an important cause of death in urban areas; we know how to tackle these, but we don't apply that knowledge well. Some cities have tested and found solutions, but don't know how to effectively disseminate successful responses. The built environment disciplines and professions; urban design, transport, landscape design and architecture with their related technical services all have important roles to play in spreading solutions, bringing them to the market and in some cases even industrialising the implementation. Whilst technological knowledge may be transferred relatively easily, we also have a lot to learn about the softer aspects of successful health initiatives, such as how to create effective collaborations, drivers, leaders and incentives.

We know that public health policies should incorporate interventions that address urban physical and social environments in addition to policies focused on individuals (Rodrigues at al. 2015). Focusing only on treatment interventions for individuals in cities is bound to fail because individuals will be forced to go back into the urban living and working conditions that may have made them sick in the first place (Corburn 2015). We need to move away from thinking solely about new services and treatments but place a renewed emphasis on city governance for health; harnessing urban design and transport planning as a powerful strategies for improvements in population health on a permanent basis (Sallis et al. 2016).

This journal will . . .

We have taken all these issues as an inspiration for why a new Journal such as this is required. *Cities and Health* will examine the complexities and difficulties of urban health. We believe that good intentions and idealism are not a sufficient basis for real advances in our understanding and practice. There is a need to critically evaluate theory and assess and learn in situ the aspects of practical initiatives that have worked well, and those that have not.

We need not only to 'Let researchers try new paths' (Oni et al. 2016b) but to use this journal to forge those paths. We would like to hear from those working in new ways and we aim to give a new space for new voices. Let's talk about the role of a whole range of critical urban actors, such as entrepreneurs: social entrepreneurs, thought entrepreneurs and policy entrepreneurs for health creation in cities.

There will be critics who argue that the quest of seeking new knowledge through bringing together population health and urban studies is fundamentally

misguided. For many, the established and closely defended working methods in health research are seen as incompatible with the world of urban management, development financing, city leadership and built environment design. On the one hand we have an empirically-led science concerned mainly with validating repeatable interventions in a closed system; and on the other, a practice-based activity, that is driven by creativity, design and community engagement, tempered by politics and the market, which through a combination of actors influences place – more an 'art' than a 'science'.

It is the contention here that efforts directed towards bringing these two realms closer together are vital for human health; and that this endeavour needs to be supported by sound research, good communication and informed debate. One must also ask what is the alternative to developing a robust and integrated spatial approach to creating health in the city?

However, while we all want to support health, we must be aware of the silos in which many of these debates occur. While those directly involved with public urban health believe they are already addressing these issues, there is still inadequate collaboration with the wide range of actors who together create and manage our urban living environment. And planners, urban designers, architects and city leaders already use the words 'making places for people', yet all too rarely interact with those whose job it is to intimately understand the characteristics of local population need. There will be inherent problems as long as these worlds remain in silos and key solutions lie in trans-disciplinarity (Lawrence & Despres 2004). It is imperative that city planning starts to be practiced as preventive medicine (Corburn, 2015), this means blending a relational and systems approach to urban health with innovative city leadership. We will need to act with imperfect evidence but to track progress, adapt interventions and manage risk, as the preferred alternative to not acting at all. We already know enough to act.

This will require disciplines to find common language, to develop a new professional health literacy as they apply a health lens to urban policy and place-making in the city. This Journal provides the space for a sharing of purpose, passion and product in the endeavour for healthy city futures, because the battle for health for all and sustainable human development will be fought and won or lost, to a large extent, in the cities of the world.

Notes on contributors

The authors represent the entire membership of the Editorial Board of Cities & Health at the date of article submission.

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