European Healthy City Network Phase V: Patterns emerging for Healthy Urban Planning

Marcus Grant
Associate Professor, University of the West of England

Abstract

There is a tradition of planning cities and their infrastructure to successfully tackle communicable disease arising from urban development. Non-communicable disease follows a different course. Development brings in its wake a basket of adverse health and health equity outcomes that are proving difficult to tackle. In response, within Phase V of the European Healthy Cities Network, municipalities have implemented a range of policy and physical interventions using a settings approach.

Due to the time lag between physical interventions and health outcomes, this research interrogates city activity itself to develop better understanding. Self-reported city case studies and questionnaire data were analysed to reveal patterns using an inductive approach. Findings indicate that some categories of intervention, such as whole city planning and transport, have a systemic impact across the wider determinants of health. Addressing transferability and stakeholder understanding helped cities create conditions for successful outcomes. Cities had varying urban development approaches for tackling climate change. Improvements to current practice are discussed, including; a distinction between supply side and demand side in healthy urban planning; valuing co-benefits; and developing integrative approaches to the evidence-base.

This evaluative paper is important for cities wanting to learn how to maximise benefits to public health through urban development and for researchers exploring, with a systemic approach, the experiences of European cities acting at the interface of urban development and public health. This paper also provides recommendations for future phases of the WHO European Healthy Cities programme, posing questions to better address governance and equity in spatial planning.

European Healthy City Network Phase V: Patterns emerging for Healthy Urban Planning

Marcus Grant, 2015

Introduction

Study of the role of the built environment in addressing the wider determinants of health has been receiving increased attention in several countries (WHO 2010). Led by studies in urban areas of middle to high-income countries, a research and policy agenda has emerged that focussing on non-health care interventions that address non-communicable diseases (NCDs) and health inequalities (Kochtitzky et al 2006, WHO Commission on Social Determinants of Health 2008). Since the mid 2000s there has been a growing consensus that while personal factors are critical in determining health, the urban environment exacerbates or mitigates health and well-being outcomes (Barton, 2009). Globally, the impact of the built environment on health is now well evidenced and widely accepted for a large number of health outcomes (Rydin, 2012; Galea & Vlahov 2005). Despite this, outside communicable diseases and interventions such as sanitation and access to water, examination of interventions that attempt to influence public health through city planning and urban design can be hard to find.

This paper reviews such interventions in cities active in Phase V of the WHO European Healthy Cities Network (EHCN). These fall within the 'Healthy Urban Environment and Design' (HUED) theme, one of three core themes in that phase. Cities were asked to submit case studies of their work and answer a questionnaire related to their activity.

In this paper, a review of the challenges faced, in what is fast becoming an important field of transdisciplinary research and practice is followed by a description of how the incorporation of city planning and development as a delivery tool for public health has emerged within the EHCN. Based on the preceding discussion and a realist-focussed analysis (Pawson et al. 2004), this section concludes by identifying five research questions. This prepares the ground for a description of the methodology developed for this element of the Phase V analysis,

The findings are reported with an eye on being concise and also providing a glimpse into the richness of the case studies. Different issues within HUED are compared and thematic issues across the case study set are explored, providing the basis for addressing the research questions. That discussion leads to a reflection on how this study assists the development of a more integrative theory for evidence generation for healthy urban planning. Finally conclusions are drawn to assist cities in maximising a public health benefit through their urban development; aiding a more integrative understanding of the Healthy City approach; and providing recommendations for future phases of the WHO European Healthy Cities programme.

Challenges of public health action through urban praxis

The form and nature of the urban environment is critical to urban population health and the features needed for a city to better support population health are becoming increasingly understood (Rydin, 2012). Focussing on NCDs, studies of the evidence base have started to yield potential causes and recommendations for evidence-based interventions (Grant and Braubach, 2010; Croucher, 2007). However, causal inference is not simple or linear. Tesh (1988) explores multi-causality in public health and the term 'causal web' was coined (Grant and Braubach, 2010) referring to the complex causal pathways found in the healthy urban planning approach (Barton and Tsourou, 2000). Cities across Europe face significant challenges such as climate change, ageing societies and providing housing and access to employment. Whilst addressing these challenges it is important to ensure that benefits are considered concurrently across multiple policy areas, a co-benefits model (Giles-Corti, 2010; WHO, 2011). HEUD interventions, in terms of health effect, are a 'blunt' weapon, the capture of co-benefits, both in terms of multiple health outcome and to wider society, is especially important to widen buy-in. Pivotal to success is marrying the public health sciences and traditions with the contribution of spatial planning and development (Kidd, 2007). Cities are complex systems, problems in complex systems require tackling with a systemic approach (Head, 2010), a model for using a health lens through which to appraise urban planning and transport decisions has already been proposed (Barton and Grant, 2006). Spatial planning (Stead & Meijers, 2009) can be considered a systems approach (Bertalanffy, 1969) and as such has an important role at the core of HUED.Spatial planning provides entry into the city system through the praxis of the built environments professions, using the terms praxis as the deployment of knowledge to serve the goal of action (Flyvbjerg, 2001). This broadly describes the modus operandi of built environment practitioners, a range of distinct but closely related professions involved in the activities of spatial and transport planning, built development and urban and landscape design. Their work ranges widely, covering new build and renewal, and is delivered at a range of scales, from building and street, home-patch and neighbourhood, to district, city and even city region (Barton, Grant and Guise, 2010).

The healthy city approach is a settings approach (Dooris et al. 2007). Expressed from its inception, the Ottawa Charter for Health Promotion stated that 'Health is created and lived by people within the settings of their everyday life' (WHO et al 1986 p7). The focus is on citywide action and governance guided by programme logic (De Leeuw, 2001 & 2015a). HUED takes on the challenge of keeping the programme connected to the importance of place and physical change. Seeing place as relational, dynamic, layered and with spatial qualities of nodes, networks and scale is important in urban public health research (Cummins et al, 2007), an understanding that also needs to inform the design and evaluation of interventions.

The neighbourhood scale as a setting for health has been under much scrutiny. Drawing conclusions across different studies, where data may come from countries with very different urban patterning, requires care. However, a number of reviews have found that many physically measurable attributes of residential neighbourhoods are associated with risks or challenges to health (Renalds et al 2010; Croucher 2007; Grant and Braubach 2010; Diez and Mair 2012) . Impacts on known determinants of health include effects on levels of physical activity, social capital and fear of crime. Health impacts themselves include, but are not limited to, effects on body weight and diabetes, hypertension and depression; all independent of individual variables such as education and income. Associated neighbourhood characteristics include, but again are not limited to, residential density, walkability, presence of local amenities, access to nature, land use patterns, access to work and access to healthy food. In a few cases the reviews cited above point to evidence of causality. Cities using HUED activity in the EHCN are seeking to influence these and other physical characteristics of neighbourhoods that can limit health and/or decrease health equity.

Evolution of healthy urban planning in the WHO Europe Healthy Cities Network

The HUED theme finds its first roots in Phase III, 1998-2002 (Belfast Healthy Cities, 2014). The built environment was recognised as an important component for the EHCN when 'Transport, environment, planning and housing' was agreed as one its four core themes. In Phase IV, 2003-2008, 'Healthy Urban Planning' became a theme and theoretical development was supported by a key text (Barton and Tsourou, 2000) and tested through the experience of cities within a thematic sub-network (Barton et al., 2003).

Do planning policies and proposals promote and encourage health through:	
Supporting healthy personal lifestyles?	Providing safety and the feeling of safety?
Promoting social cohesion and social capital?	Supporting equity?
Providing quality housing?	Ensuring good air quality and a high quality visual environment?
Access to work?	Adopting a sustainable approach to water, sanitation and drainage?
Access to local facilities and services?	Wise use of land and resources; and support for biodiversity?
Promoting access to local, sustainable food and food production?	Addressing climate mitigation and adaptation issues?

Table 1: The revised twelve objectives of Healthy Urban Planning (Revised by the author from Barton and Tsourou, 2000)

Phase IV posited of twelve objectives for healthy urban planning. Devised by the cities (Barton and Tsourou, 2000), this original set has been revised through subsequent experience and testing. The list, presented here (Table 1), better covers HUED determinants of health not previously covered; namely biodiversity, food issues, and energy and waste (as resources).

Health and Health Equity in All Policies was the overarching theme for Phase V (2009-2013), three core themes were identified: Caring and supportive environments; Healthy living; and HUED. Cities were given this thematic definition of HUED: '*A healthy city offers a physical and built environment that supports health, recreation and well-being, safety, social interaction, easy mobility, a sense of pride and cultural identity and that is accessible to the needs of all its citizens.' (WHO, 2008 P5)*

HUED, as a theme, was presented as comprising eight 'important issues' (WHO 2009):

1. **Climate change and public health emergencies.** Tackling the health implications of climate change in cities and being vigilant about global changes.
2. **Exposure to noise and pollution.** Promoting and adopting practices that protect people, especially children, from health-damaging exposure.
3. **Healthy urban planning.** Integrating health considerations into urban planning processes, programmes and projects and establishing the necessary capacity and political and institutional commitment to achieve this goal.
4. **Healthy transport.** Promoting accessibility, by facilitating the ability for everyone, including very young people and people with limited mobility, to reach their required destination without having to use a car.
5. **Healthy urban design.** Creating socially supportive environments and an environment that encourages walking and cycling. Enhancing cities' distinctive and multifaceted cultural assets in urban design.
6. **Housing and regeneration.** Increasing access through planning and design to integrated transport systems, better housing for all, health-enhancing regeneration schemes and to green and open

spaces for recreation and physical activity.

7. **Safety and security.** Ensuring that the planning and design of cities and neighbourhoods allows social interaction and increases a sense of safety and security.

8. **Creativity and liveability.** Promoting policies and cultural activities that encourage creativity and contribute to thriving communities by developing social capital, improving social cohesion.

The current analysis of city activity needs to contribute to the next stage of evolution of HUED. Consistent with the realist approach being used in Phase V evaluations (Pawson et al. 2010, de Leeuw 2015b), we need to hear experience from the cities:

- Are some types of physical intervention are more effective than others?
- What outcomes are the cities finding?
- How are cities creating the conditions for success?
- What lessons arise for cities wanting to use urban change for public health?

These four questions acts as initial probes for eliciting meaning from the data. At a more fundamental level, action research in this field is held back by different epistemological paradigms and we must ask: Can a more integrative theory of evidence generation help in bridging the health and urban planning fields?

Methodology

De Leeuw (2015b) in this special issue describes in detail the overarching methodological approach for the Phase V evaluation, which broadly follows a realist paradigm. This section focuses on the specific approach derived from that for the HUED analysis. All data has come from cities themselves, from two sources, firstly responses to the 'General Evaluation Questionnaire' (GEQ) and secondly case studies submitted by cities against a template. No health data was asked for and this study does not fit a normal controlled method. This study does not attempt to attribute causality, efficacy or effectiveness. Acknowledging that the public health model that best fits HUED is one of a 'multi-causal web' (Zoller 2005, Tesh 1994); a combination of self–selecting and self reported narratives, and the realist approach used, means that any conclusions posited are suggestions arising from patterns in the data. As such, the paper contributes to the systemic action research (Dick, 2012) required for study of healthy urban planning. Analysis was also influenced by a 'design research' paradigm (Friedman, 2003), whereby the focus of enquiry emerged as the data was interrogated. This is an inductive methodology (Thomas, 2006) and views the data, as containing tacit knowledge from cities. The research task is to spot patterns, contradictions and trigger plausible theories in response to the initial research questions.

Establishing the dataset

Within these the relevant datasets were determined. For the GEQ, the baseline used was the responses to three questions from the 71 cities returning the questionnaire that has a relevance to HUED, neighbourhood safety (Q40), climate change (Q41) and physical activity measures (Q44), these helped add qualitative information for these issues. For case studies, cities could submit one or more identifying the core theme, guided by an online form. Of 158 case studies, 35 were submitted as HUED. All case studies were extensively coded using Nvivo software against a set of over 100 hierarchically grouped codes. Coding identified text fragments of interest for subsequent analysis. The coding list was developed to allow flexibility when interrogating the data and to provide a platform for inductive qualitative enquiry (Thomas, 2006).

In order to ascertain what activities in cities should be included in analysis of HUED, the authors developed the following intervention definition:

'A Healthy Urban Environment and Design intervention is one that is intended to change the physical form or physical management of the city or parts of it, or change citizen engagement with planning, development or management of the physical form of the city or parts of it, with the intention of a

positive health outcome; an increase in health equity is considered a positive health outcome.'

Initial scoping against this HUED definition, identified a further 25 relevant case studies bringing the total set to be reviewed for inclusion to 60. These 60 were then hand sifted, examining each against the eight HUED issues. This led to 14 being rejected. In addition all 98 case studies not included in the set of 60 were then filtered using the key words food, housing, work and employment, to check for further HUED studies; none were found. The result was 46 case studies, submitted by 31 cities, as the HUED dataset, table 2 lists all 46 case studies, together with a mini-descriptor and a classification of primary and secondary foci and/or impacts across the eight HUED issues (see also Figure 1). The findings and discussion below contain further abbreviated details of many of the case studies, a fuller account can be found in Grant and Lease 2014.

Healthy Urban Environment and Design	City-wide strategic Policy and activity		Place based					
			City-wide policy		Neighbourhood projects		The living environment	
Important issues / City and Title	Climate & ph emergencies	Exposure to noise and pollution	Healthy urban planning	Healthy transport	Healthy urban design	Housing and regeneration	Safety and security	Creativity and liveability
Amaroussion: The bioclimatic regeneration of the historic centre	✔	✓	✓		✓	✓	✓	✓
Arezzo: Changing the urban waste handing policy with citizen participation		✔						✓
Aydin: Service network of Aydin Municipality								✔
Belfast: Child friendly cities – the potential of healthy urban environments			✔		✓			✓
Belfast: Good for regeneration, good for health, good for Belfast – indicators	✓	✓	✔	✓	✓	✓	✓	✓
Bursa: Master Plan			✔					
Bursa: Projects to increase sports opportunities			✔	✓	✓			✓
Bursa: Transformation of the historical city centre		✓	✓	✓	✔	✓		✓
Cardiff: Incorporating healthy urban planning principles into the city plan			✔					
Carlisle: Turning a car dominated environment into a pedestrian-friendly street		✓	✓	✓	✔		✓	✓
Denizli: Solid waste sanitary landfill plant	✔		✓					
Denizli: Traffic training park							✔	✓
Dimitrovgrad: a city comfortable for everybody and friendly to everyone			✔		✓			
Dresden: Walking tours for (elderly) people			✓		✓			✔
Galway City: Healthy urban environment team			✔		✓			✓
Gölcük: Public health project toward the development of health				✓	✔	✓	✓	
Gölcük: Yazlik Baths thermal tourism facility			✓		✔			✓
Gyor: Social urban rehabilitation project					✓	✔	✓	✓
Helsingborg: Planting without borders in four apartment areas			✓		✓	✔	✓	✓
Izhevsk: is an active city			✓	✔	✓			✓

Jurmala: Environment accommodation for people with disabilities			✓		✔			✓
Jurmala: Group house (apartment) establishment and provision							✓	✔
Kirikkale Bulvar Park project	✓				✔			
Kırıkkale waste water treatment plant	✓	✔						
Klaipedia: Health city priorities in all politics			✔	✓				
Kuopio: Strategy of three fabrics: Walking city and residential urban fingers			✔	✓		✓		
Kuopio: Action-oriented model of Community Centres as a welfare user interface								✔
Kuopio: Be Active Throughout your Life (OLE)			✔					✓
Ljubljana Development of home care services for seniors			✓	✓		✔		
Ljubljana: Accessibility of built environment; services for the disabled			✓	✔		✓	✓	✓
Modena: Ecological Sundays; no cars, sustainable environment, healthy lifestyles			✔				✓	✓
Modena: Physical activity networking: using WHO HEAT tool for new cycle paths		✓	✓	✔	✓			
Oestfold: Public health planning			✔					
Pärnu: How the city developed sustainable transport	✓	✓	✓	✔	✓		✓	
Preston: Community food growing								✔
Preston: Cycling city			✔	✓				✓
Preston: Healthy streets			✓	✓			✓	✔
Preston: Preston environmental forum					✔	✓	✓	✓
Rennes: HIA approach for an urban planning project: Railway stop of Pontchaillou			✓	✓	✔	✓		✓
Rennes: Implementation of the local health contract for the city		✓	✔	✓	✓			
Rotterdam: Roles for planners and inhabitants for a healthy living environment.			✓		✔	✓		✓
Sandnes: Neighbourhood hiking tracks for all			✓	✔	✓		✓	✓
Stoke-on-Trent: A systematic approach to HIA in planning policy decisions	✓	✓	✔	✓	✓	✓	✓	✓
Swansea: Neighbourhood Partnerships – Tackling substance misuse			✓	✓			✓	✔
Torino: Programme for new spaces and places for the aggregation to the citizens			✓		✓	✔		✓
Vitoria-Gasteiz: Introduction of HIA in municipal projects			✔	✓				
TOTAL = 46	**2**	**2**	**12**	**9**	**9**	**4**	**1**	**7**

Key: ✔ Primary focus of case study activity

  ✓ Secondary foci or impacts of case study activity

Table 2: Full list of HUED case studies. This table indicates the primary focus of each case study and also secondary issues where goals have been set by the city or where impacts have been recorded.

The conceptual framework

The 'important issues' of Phase V can be grouped into four pairs. Similarities in each pairing mainly relate scale of activity stretching from city-wide strategic policy to actions that directly influence
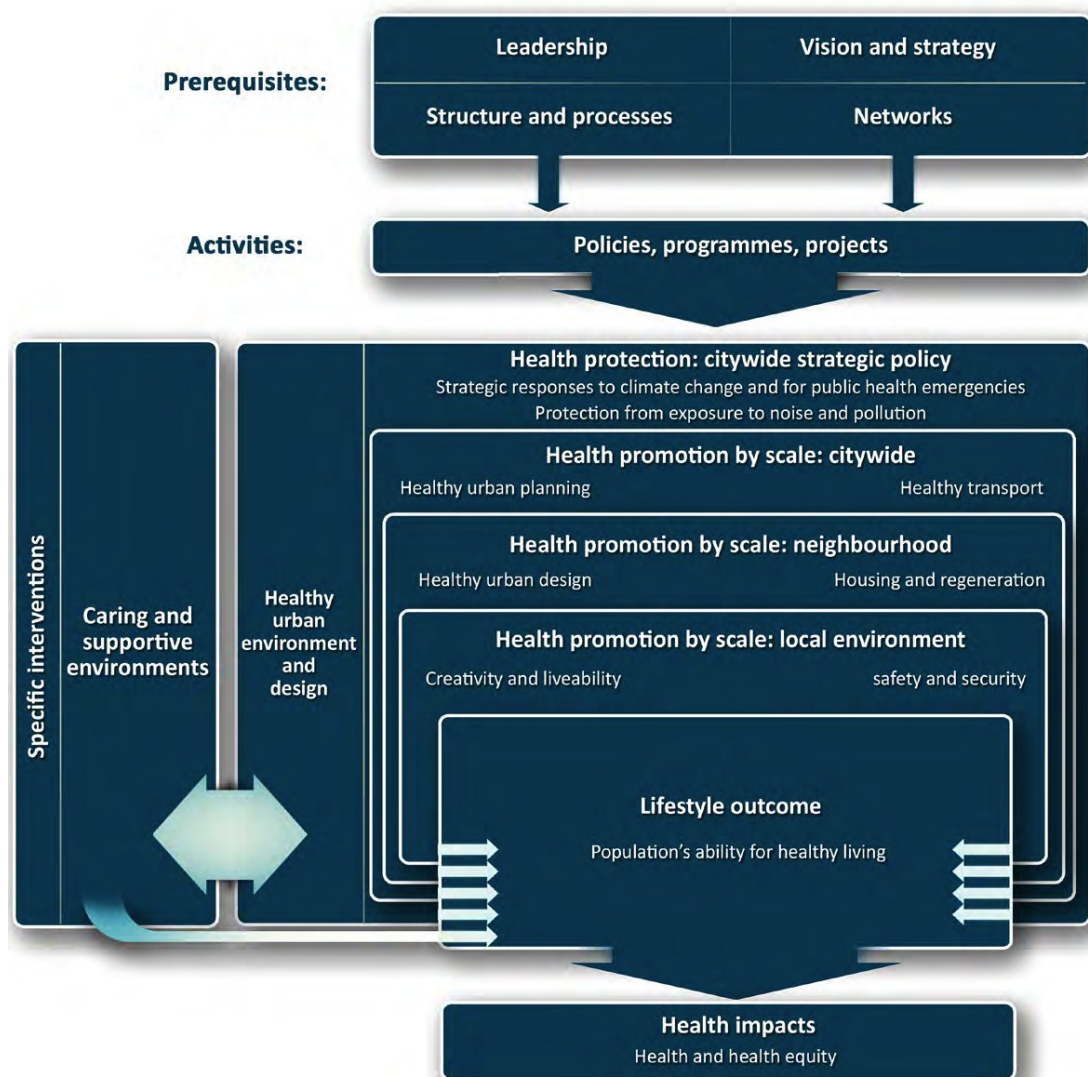

Figure 1 Health Urban Environment and Design: Interventions modify lifestyle outcome leading to health impacts

people in their local areas. A conceptual framework (Figure 1) has been constructed to show how HUED can be unpacked within the overall Phase V logic model (Green, 2015).

Analysis of the data

Respondents who provided the base data had differing level of English language and communication skills, they had a variety of relationships to the interventions and of access to accurate source information. It must also be recognised that both the cities and the researchers were working under considerable time constraints. As such we adopted a pragmatic approach to the analysis (Morgan 2014).

Each of the 46 case studies was scrutinised using the Nvivo coding and allocated to one of the eight 'important issues'. Due to the systemic nature of HUED activity, case studies could be influenced by, or have impact on several issues, this was recorded. Content was then analysed through pinpointing text fragments in each case study that were associated with any of the four plus one research questions.

An excel spreadsheet was then used to sort and cluster responses into main sub-themes. Similarities and patterns in the data were looked for, and if these gave rise to new lines of inquiry (e.g. were there any patterns in the way cities handled food related interventions?), new enquiries could then be initiated using the extensive Nvivo codes or via free text searches within the case studies. City responses to relevant sections of the GEQ were sifted and sorted for thematic patterns to provide aan additional layer of understanding.

Findings

This section starts with a broad description and analysis of interactions between issues. Details of the case studies follow, with a focus on the underlying problems addressed and the triggers for action. Within the constraints of this paper, only the briefest flavour of the breadth and nature of the interventions can be given. This is followed by analysis through the Nvivo codes related to: use of evidence; outcomes in terms of lessons learnt, transferability and systemic change; and finally project evaluation.

Of the 31 HUED case study cities, new cities accounted for 26% (8) of the HUED group, compared to 28% of all cities in the Phase. 13% (4) HUED cities have been participants in all five phases of the Healthy Cities programme, the same proportion as the 13% they account for in the 99 Phase V cities. Phase V cities having some participation in one other phase amounted to 25%, compared to 29% of HUED cities; whilst 30% of Phase V cities had participated in three or more previous phases, compared to 29% of HUED cities. Overall, the conclusion drawn is that the ratio of healthy city experience in HUED cities differs little from the total Phase V cohort.

Spatial coverage

Spatial coverage was analysed for each case study and categorized as city-wide, city centre only, single location (not city centre) or multiple targeted locations. Figure 2 shows the spread of these categories.
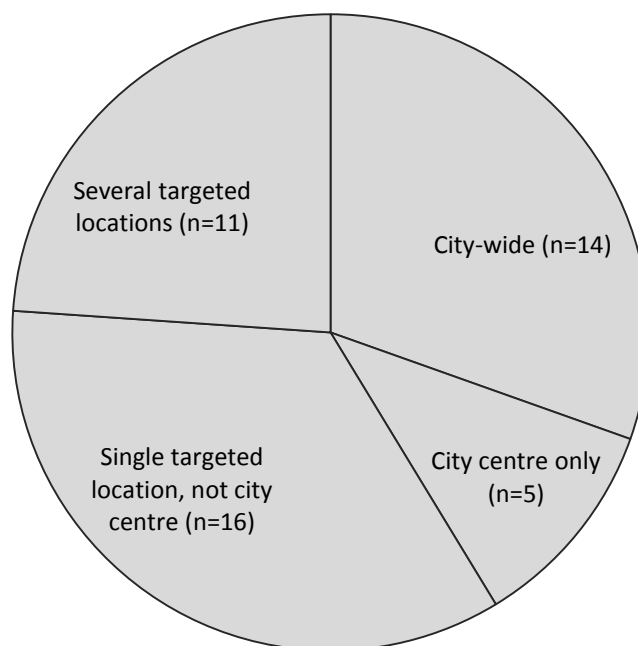

Figure 2: Spatial coverage of the case studies

Population

The HEUD cities mainly fall into the 100,000–499,999 population group (18 cities); six fall within the >500,000 population group, and a further six fall in the 50,000–99,999 group. Only one HUED city (Pärnu) has a population below 50,000. The conclusion is that overall the population spread in the cities with HUED case studies follows the spread of the 99 Phase V cities.

Geography

In the cohort of 31 cities, the largest group was the 15 cities from the Euro OECD region at 48.5% this is over-represented compared with 35% in the entire 99 cities. Over-represented also were cities in New Europe with five cities (16% compared with 13%). Under represented groups were the Mediterranean region 9 cities (29% compared with 41%) and New Independent States with just two cities (6.5% compared with 11%).

Issue focus within case studies

Each of the 46 case studies was allocated to one of the eight HUED issues based on the primary focus of activity (Figure 3). Healthy Urban Planning and Healthy Transport accounted for roughly 46% of the studies and Healthy Urban Design and Housing and Regeneration for approximately 29%, with the remaining 4 other issues accounting for 25%.
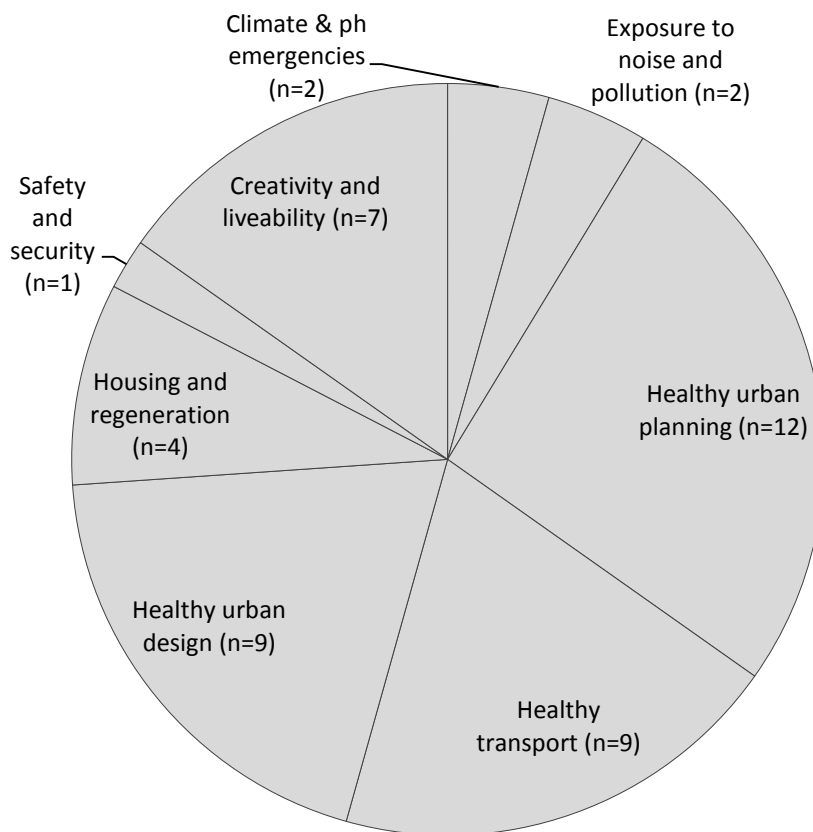

Figure 3: Distributions of case studies by primary HUED issue.

Although each case study was assigned to a single primary HUED issue, intended and unforeseen 'secondary' impacts reported by the cities were also recorded. A pattern worth noting is the average

number of HUED issues (primary and secondary) influenced for a case study type compared with the maximum (Figure 4).
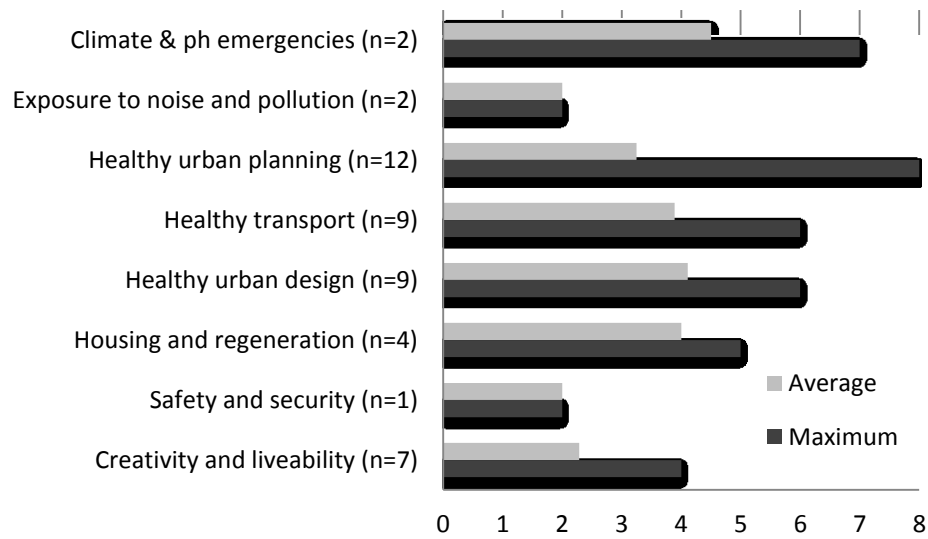

Figure 4: Number of HUED issues (primary and secondary) influenced by each HUED issue category

Although not statistically robust, the usefulness of this pattern is that it reveals a potential in which types of intervention might influence a wider spectrum of HUED issues (the numeric maximum) and also the degree to which cities submitting case studies have been able to achieve that potential (the gap between the maximum and the average). Interventions focussing on healthy urban planning, closely by those focussing on climate change, have the greatest potential to have wide influence. Although, with only two climate change examples, a larger study pool would be required to test if this holds true. Healthy transport and healthy urban design interventions also score well.
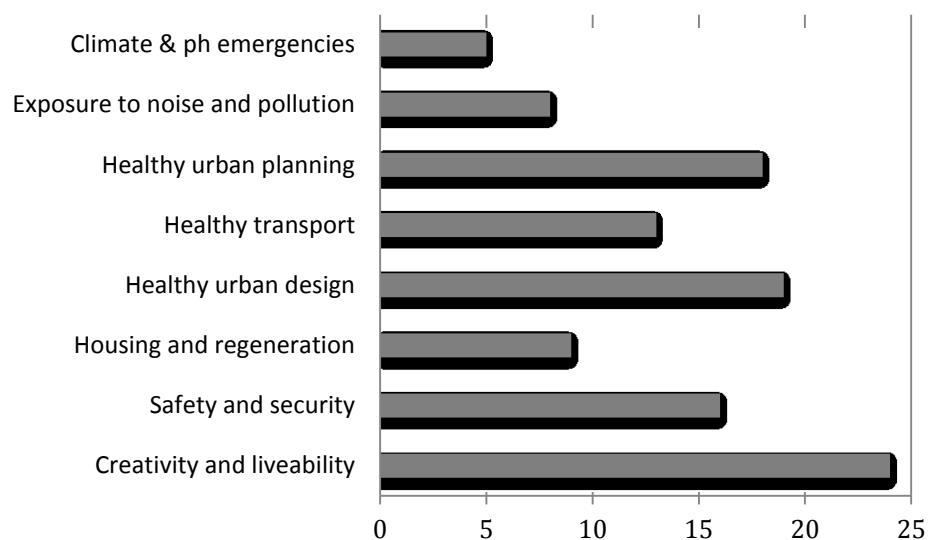

Figure 5: Number of times a HUED issue was a secondary influence in the 46 studies

Another view of the HUED as a system can be gained through noting the number of times an issue has been influenced through being a secondary factor (Fig 5). Creativity and Liveability has the highest score. Safety and Security, Healthy Urban Design and Healthy Urban Planning are also issues that

were strongly influenced by case studies primarily focused on other issues.

Climate Change and Public Health Emergencies and exposure to Noise and Pollution

Case study examination revealed that for these two health protection issues, 17 cities pursued action at strategic city-wide policy level or through local action. In terms of primary themes, only two HUED case studies related to Climate Change and two to Noise and Pollution; no case studies focussed on Public Health Emergencies. In case studies with other thematic primary issues, Climate Change was a secondary issue for a further eight and Noise and Pollution for a further five.

Triggers for action were various. In Amaroussion, citizens avoided the centre in the summer because of the heat; with few green areas and little shade, an unpleasant heat island resulted. In Kirikkale, a waste-water treatment plant was initiated by political support. In Arezzo, the local population reported high pollution levels and requested a health survey, funding from the national research council and EU's LIFE Programme were enablers.

The small number of case studies relating to climate change is not symptomatic of a general malaise in tackling the issue. GEQ Q41 asked cities to rate and comment on city urban planning for mitigation of, and adaptation to, climate change. There were 65 responses demonstrating that climate change issues are taken seriously by many cities. These responses, which described action in the cities, can be broken into several categories as indicated in Figure 6.
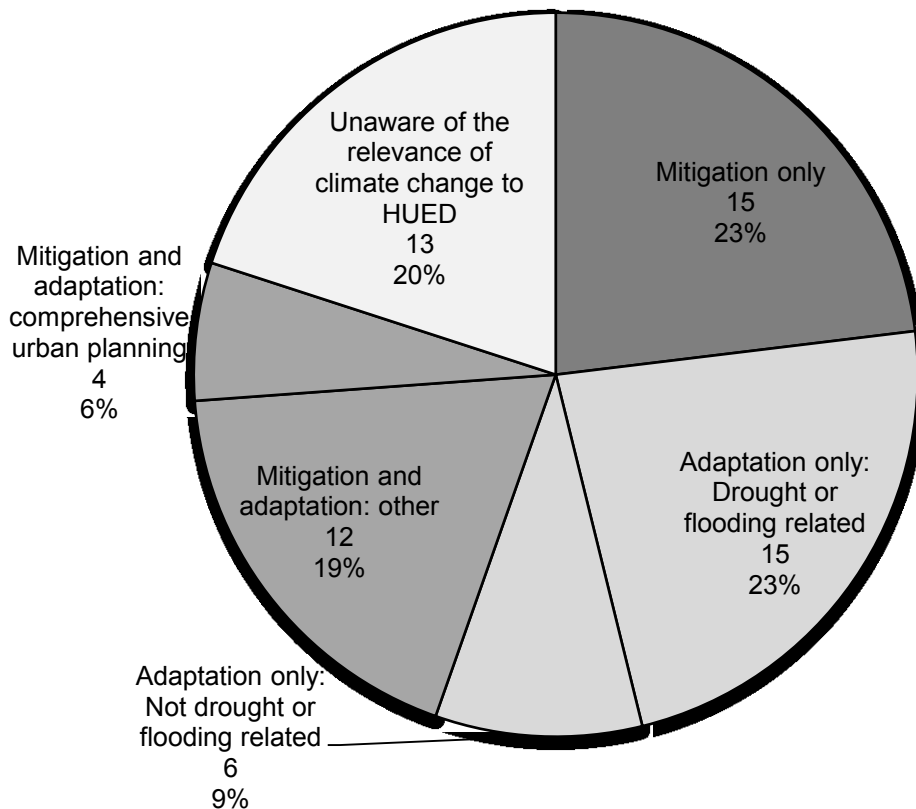

Figure 6: GEQ Q41: Comment on city urban planning for mitigation of, and adaptation to, climate change (N=65)

Some cities reported only mitigation or adaption activity (approximately two thirds of the latter being related to increases in drought or flooding). 16 cities reported both adaptation and mitigation, four of these used a comprehensive whole city planning approach. These four were Manchester's 'A Certain Future programme'; Cherepovets' comprehensive package of actions using ecological, transport and housing programmes; Derry/Londonderry's 'Eco City' approach; and Seixal's approach in reconciling environmental protection with economic development and social cohesion. Worryingly the GEQ also

showed that 13 cities were not aware of the relevance of climate change to the Healthy Cities' HUED theme.

Healthy Urban Planning and Healthy Transport

These two issues were tackled with health promotion interventions that were place-based and had a city-wide scale of activity. Twelve HUED case studies primarily dealt with Healthy Urban Planning and nine with Healthy Transport. Examples of the former included a Belfast indicators project 'Good for regeneration, good for health, good for Belfast'. This saw a health impact assessment specialist contribute to an EU URBACT II programme developing criteria for healthy sustainable city development. Meanwhile, in Dimitrovgrad the objective was to reduce inequity in deprived neighbourhoods through the development of social services and a more inclusive public realm. Healthy Transport included Izhevsk's 'Active city' with the creation of 'health paths' linked to promotion of Nordic Walking and construction of a cycle network. Modena used the WHO HEAT tool (Kahlmeier et al. 2010) to justify and build a new cycle path, innovatively using this tool to educate people about the benefits of active travel. This on-line tool provides a calculated financial estimate of the benefits arising from health outcomes due to new or improved walking and cycling infrastructure.

A variety of triggers initiated action. Frequently policy impetus from outside the city played a part, such as WHO, EU or national commitments. These high level policies gave traction to problems that had been identified locally, be they air quality, health inequalities, lack of physical activity or in the case of Stoke-on-Trent ensuring that they did not 'build-in poor health' to major regeneration schemes.

Healthy urban design and housing and regeneration

Interventions primarily focussing on these two issues were to be place-based and required neighbourhood or local level activity. A health promotion stance was taken. There were nine case studies relating to Healthy Urban Design and four relating to Housing and Regeneration. Underlying problems often had a strong social dimension, such as extensive Blue Flag beaches in Jurmala that were inaccessible to those with disabilities. An area in Helsingborg with a very mixed cultural population and high turnover of residents had worrying levels of park vandalism and lacked natural meeting places. Triggers for projects came mainly from municipalities themselves. In Preston however, local groups wanted to develop a mechanism for supporting community environmental activity across the city. Funding was a great motivator; the Turin programme received EU finding for its activity, and municipality funds in Gyor brought the project forward from a later time frame.

Urban Design and Housing and Regeneration accounted for 28% of the 46 case studies, second only to Planning and Transport. All bar one of the studies had a physical intervention at their core. Studies were of two types. Firstly, in about half the cases the physical intervention was intimately connected to a specific local context, such that replication in the same city, or elsewhere, would difficult. Secondly, those where a template had been developed which could, with adaptation, be applicable in other cities without too much difficulty.

Safety and Security and Creativity and Liveability

For these two issues, health promotion was pursued through physical and non-physical interventions in local environments. There wide variation in the eight case studies, only one (a road safety traffic-training park for children in Denizil) related to Safety and Security. In Kuopio, community centres for elderly were developed as a place for socialising and receiving support allowing elders to stay living in their own homes for longer. In Swansea, the police saw the potential of a Healthy Cities' approach for integrated and preventative approaches to address problems caused by substance misuse.

Underlying problems such as isolation, anti-social behaviour and the need to better support vulnerable groups were evident in several studies. Long-term policy priorities combined with access to new funding often triggered activity.

Although only eight case studies focused on these issues, 14 case studies within other HUED categories had a secondary influence on 'Safety and Security' and 23 on 'Creativity and Liveability'; in

particular, those whose primary focus was Healthy Urban Planning, Healthy Transport and Healthy Urban Design.

The GEQ (Q40) asked the degree to which implementation of physical design contributed to the feeling of safety and pride in neighbourhoods. There were 19 answers, with respondents citing activity including urban renewal, supporting more activity on local streets, better street lighting, new local public spaces and focussing on target groups and citizen engagement.

Use of evidence

The use of evidence was largely lacking from the reporting of the case studies focussing on climate change, safety and liveability. Case studies relating to noise and pollution often commissioned both qualitative and quantitative evidence gathering. In relation to interventions based on urban planning, transport, urban design and housing; use of evidence is apparent in a number of case studies. Leading practice can be seen in cities such as Rennes. Here collaboration with partners gave better access to background knowledge and evidence, a range of local data were collected and analysed by panels of experts who then identified issues and how to manage the implementation. In Belfast, a formal systematic evidence review was used; this helped identify lack of appropriate data as a key issue when considering the health effects of regeneration. Cities applying the WHO HEAT tool were by default accessing an evidence-based approach, and for Modena this helped to convince politicians of the benefits.

Outcomes

Healthy Cities is a long-term programme; healthy urban planning may guide physical change over 10-25 years, the period of city plan. As such, within the prevailing public health research paradigm, population health outcomes will always be difficult to measure and attribute. With the systemic nature of HEUD, many co-benefits and intermediate outcomes occur and are sought. This section reports such outcomes in three clusters; systemic change, transferability and lessons learnt.

Systemic change

Systemic change was not rigorously assessed in any of the studies, but alluded to in a majority. All four cities with climate-related activities reported fundamental shifts in the way they worked, such as a change in their practice of stakeholder or public involvement. Kirikkale, recorded an influence on 'governance' and Amaroussion noted now being better able to address the social determinants of health with stakeholders and local people. All the cities, bar one, primarily addressing Healthy Urban Planning and/or Healthy Transport issues reported strategic influence, in particular spreading better understanding of the social determinants of health and health equity.

Transferability

Tools were clearly useful devices for developing transferability. In Belfast, checklists were found valuable for linking discussions between regeneration and health. This enabled the move from a pilot demonstration project to mainstreaming of the approach. Oestfold County reported that ensuring spatial plans incorporated health priorities meant that it would be easier to implement health prevention and health promotion measures in future.

Many interventions were too grounded in locational specifics to make them transferable (particularly complex urban regeneration projects), however a number could serve as templates for similar situations such as: Jurmala's accessible beaches and group house programme; Ljubljana's sheltered housing; Preston's environmental forum, community growing and Healthy Streets programme; Kuopio's model for community centre provision; and Swansea in tackling substance abuse. Several cities' pedestrianisation and greening of city centres interventions are also transferable. With many examples, the practice of Health Impact Assessment (HIA) in physical planning, using a multitude of approaches, is another transferable tool that can be a positive addition to partnership working.

The learning reported by the cities through HUED activity was very rich; it is outlined below in three categories.

Vision and advocacy: The message from the case studies was that long-term vision needs marrying with the use of relevant and timely milestones to enable early wins. Albeit a complex agenda, successful projects focused on key local issues, using clear messages. Respondents found that a demonstration project can be very effective as proof of approach. And in advocacy, public health professionals needed to be positive in their representations, seeking to offer solutions to partners.

Working with partners: Partnership working needed time and co-education and expert advice was often cited as important. A partnership approach enabled partners to take ownership of the milestones and so help spread commitment. A typical experience was that of Amaroussion, where cross-disciplinary partnerships, with public consultation were very important for success. Stoke-on-Trent set up a 'learning framework' enabling all stakeholders to move forward together. In terms of Healthy Transport, the lessons here were of a different nature. Transport professionals are a technical profession with their own funding cycles and valuation methods. Tackling this, cities talked a lot about the value of 'inter-departmental working', 'collaboration with other sectors', connecting 'city departments'.

Leadership: Cities found that support was needed at a strategic level, this includes provision for, the impact that being a Healthy City has on resources. High level monitoring is important, particularly in an environment subject to policy shifts. Some very positive experiences were recounted. In Ljubljana, raised awareness through healthy city activity, city departments are now better connected and more transparent, the result; a better quality project. In Parnu, local people were the block and the municipality saw the need to educate people to use active travel. To do this they studied people's needs and everyday life patterns. Through this analysis they engaged people and NGOs to participate in decision-making.

Project evaluation

With only two exceptions, cities were unable to submit evidence of effectiveness. In the two cases where this was available the nature of the intervention itself, such as improvement to specific cycling infrastructure, allowed for a simple before and after monitoring of use. Lack of health related data is not surprising since the time horizons for HUED health outcomes are long-term, set against much shorter implementation time-frames. Moreover, as already discussed, causal attribution to a specific interventions would be unobtainable. In spite of this cities attempted evaluation through a range of approaches.

Jurmala reported an observable improvement in health and social integration in the target group, and Kuopio put in place a methodology to annually assess the social and financial effects of its activity. A food growing project in Preston gathered self-reported health and well-being data and Preston's 'Healthy Streets' were evaluated using a mix of quantitative and qualitative data. Several cities engaged in programme evaluations. The amount of physical activity in Izhevsk was considered improved as a ninth of the whole population participated in an intervention event. Participation in a cycling initiative in Preston was found to have generated 1,349 new participants and 4,107 visits to scheduled events.

Other cities deemed projects a success through achieving project objectives. HIA in Arrezo has led to the Municipality have second thoughts about enlarging an incinerator. Helsingborg stated that its project was so successful that it might become a permanent programme. Modena's 'Ecological Sundays' led to the development of a new network of stakeholders now interested in well-being and the public's experience a car-free city centre changed attitudes. The benefits of fewer cars in terms of enjoyment and well-being is leading to calls for pedestrianisation of other areas of the City.

A few cities engaged in very useful self-reflection. Preston considered that it should have built more radial cycle paths into what has become a very successful orbital cycle path. Bursa, Moderna and

Rotterdam, noted the need for more robust evaluation plans.

The GEQ also provided evaluation information. Asked about the impact on local and national measures to increase physical activity (Q44), cities cited over 20 projects where they had found or were expecting an impact. Impacts cited included support for; active travel, everyday activity, access to leisure activity centres and healthier neighbourhood design.

Discussion

Compared with Phase IV (Barton and Grant, 2012), HUED activity, is more widespread across the network and of greater variety. The methodology of the Phase V evaluation has been more detailed and provides the basis, with cities, for the co-generation of knowledge to inform practise. However both the strengths and the limitations of the methodology need acknowledging. Although the realist approach adopted has the potential to yield more robust results, resource and time limits have lead to the absence of some key elements such as checking the veracity of city claims, and reviewing and refining the findings with the participants. As HUED is part of a long-term programme, some of this will be covered as cities enter phase VI and respond to Phase V evaluations.

Effectiveness of types of physical intervention

Of the 46 HUED case studies, Healthy Planning and Healthy Transport accounted for almost half. It is perhaps unsurprising these activities are popular as they are often woven into physical investment to serve needs for housing, jobs and leisure. These types of intervention were particularly effective in providing co-benefits (Younger et al. 2008) through addressing the other HUED issues (Figure 4). City and transport plan-making requires widespread consultation embedding the crucial political and community support that leads to well supported interventions.

With very few examples, interventions having the weakest co-benefits were those focussing on the narrower, health protection issues of pollution, noise, safety and security. When these targeted a specific challenge to health, such as poor air quality, they can be highly effective, but as they are not systemic, unforeseen consequences will need to be carefully considered.

In terms of Healthy Urban Planning and Housing and Regeneration cities noted benefits through forging partnerships with other professionals and stakeholder groups, recognising that these relationships would bear fruit in future projects.

At its best HIA, used across a range of intervention types, was practised a tool with wide application that can ensure engagement with stakeholders and other professions.

Cities reported useful lessons for advocacy, partnership working and leadership in public health. Transferability was only been adopted as a core goal for intervention design by a few cities. Following the dire lessons of physical determinism (Franck, 1984), transferability in urban policy needs to be handled with great care. Further examination of these case studies and discussions with cities is required to clearly define how transferability can be usefully defined in this context.

Creating the conditions for success

HUED programmes need to be spatially aware with a deliberate relationship to a chosen scale. The most potent scales for co-benefits were city-wide policy or programmes, and neighbourhood activity.

In an early review of healthy city literature (Kenzer 2000), there are several references to city planning, but no reference to 'neighbourhood'. Just over a decade later a comprehensive review has 15 references to neighbourhood (Rydin, 2012), cities are finding the neighbourhood scale valuable for creating well supported projects.

The case studies show that clustering action can be effective. Within a city, stronger interventions develop when the city makes an effort to cluster projects. Case studies show that small and well-

designed pilot projects can grow, geographically and/or thematically into a cluster of four, five or even six related projects. This approach allows know-how and staff skills to spread organically in the city into new teams and new places.

Projects can win wider support if the potential from co-benefits is better realised. For example, cities have used gardening projects for food access, but also to support social capital and active living. Similarly active walking projects have been designed to support community cohesion and promote local safety, they can also support the viability of local facilities. Of course, city case studies with the broadest reach and potential for influencing the wider determinants of health will not be limited thematically to HEUD, but have the ability to deliver co-benefits across a wider range of healthy city themes.

Evaluation has its part to play in capturing the co-benefits. If the paradigm of HUED makes robust health outcome evaluation unobtainable then other proxies and alternative approaches must be used. In other complex situations benchmarking, quantified before interventions are made, has been found useful. Simple but systematic monitoring after implementation also has a role to play.

A two fold framework for action

The case studies show that HUED is seen as having the potential for delivering a range of local health outcomes. Yet leadership and governance, goals for Phase VI, are under theorised. Two complementary modes of action, outlined below, can be distinguished in the case studies. Cities need to assess and target the need for each.

Tools and the supply side

Many cities presented case studies featuring tools. This is a 'supply side' action. Tools will be taken up where there is a demand and where they add value. Examples include HIA methodologies; the development of indicator sets, publishing guidance for developers, capacity building for use of the WHO HEAT tool, and developing methods to put health into city plans.

Advocacy and the demand side

Several cities demonstrated how wider circles of stakeholders (both city leaders and local communities) were drawn into seeing the value of healthy city work. This is a 'demand side' output. A range of relevant practice was developed by cities such as; citizen data collection, involving children, participatory pilot projects, engagement models for different communities, and a learning framework. Through carefully designed participation and engagement, several cities demonstrated that were able to encourage both citizens and politicians to demand healthier neighbourhoods.

Developing a more integrative theory of evidence generation for healthy urban planning

The particular challenges of gathering evidence of effectiveness for settings based interventions has been recognised (Dooris, 2006). In the open system of a city, classical public health research methodology faces a plethora of almost insurmountable challenges in the guise of confounders, contaminants, identification of dosage, many sources of bias including 'white hat bias' (Cope and Allison, 2010) and the 'Hawthorne Effect'. Critically these influence attribution of causality. Methodologies are being developed to attempt to address issues thrown up by this kind of research, such as the UK's Medical Research Council 'Developing and evaluating complex interventions: new guidance' (Craig et al. 2008). However these approaches are still firmly rooted in the public health epistemological tradition and the suggested methods are those that result in empirically measurable, discrete results that are in keeping with the scientific method (Tesh,1994).

As already discussed, HUED interventions are embedded within a 'multi-causal web' (Zoller 2005). Tesh suggests that if a new model arises that promises to be non-reductionist by treating causation broadly, it may actually discourage change by presenting so many targets that choosing any one

intervention seems insignificant. Or, on the other hand, presenting all targets as equal choices for intervention, thereby providing researchers, policy-makers, and the public with justification for choosing discrete solutions that then do not address the unhealthy system itself (Tesh, 1994). In reaction to this problem Grant and Barton (2013) found, though a programme of action research, that an inclusive and participatory method of HIA can be effective in holding the many co-benefits within an overall framework. These cities' experiences certainly confirm that HIA methodologies have potential in this field, and they can bridge the various disciplines, but techniques are required that break free of their much discussed many limitations (Barton and Grant 2008).

Healthy Cities as co-generators of knowledge

There have been critiques of methodologies that even attempt to find an association or potential causality between neighbourhood characteristics and individual health (Jokela 2014) and there are calls for ever more novel statistics and innovative methods (Duncan 2014). However there is an epistemological dissonance between the empirical study methodologies being pursued in neighbourhoods and the fundamental nature of the multi-causal and open systems under study. With an almost unlimited choice of physical parameters to measure and an equally bewildering array of candidate health outcomes, the notion of proving significant causality through epidemiological approaches is itself misguided (Oates 2004). If the goal of better knowledge is to improve urban health through planning and urban design, the validity of using complementary scientific approaches need to be recognised; then the understanding within cities of what works and why is an essential ingredient (Pawson et al. 2010).

Important knowledge can be generated in situ through action learning (Argyris & Schön, 1997). We need research methods that can support and critically analyse multi-disciplinary groups and communities as they develop their understandings of neighbourhood characteristics that support health (Pilkington, Grant and Orme 2008; Barton and Grant 2008).

Research priorities

There are two significant gaps evident, through omission, in the data from cities. These will need plugging as the field matures. Firstly the economic case still needs proving, there is an implicit hunch that 'building-in' health makes long-term financial sense, can we now develop the research to prove it? Secondly, in this multi-disciplinary, multi-professional and multi-stakeholder domain, evidence is being created and evidence is being consumed across quite different regimes of validity and relevance. However, we don't yet understand the nodes, misconnections and outright gaps within the landscape of evidence pathways.

For the healthy city field as a whole, there is now enough data within the Phase V evaluation, to be able to analyse which attributes within case studies, and which classes of action, support multiple co-benefits across a range of potential health outcome indicators. The assembled expert panel, who have contributed to the Phase V evaluation, are now committed to developing an integrated research programme. The aim is to identify key case studies that initiated systemic change across a range of the Phase 5 themes.

Conclusions: Issues for Phase VI and development of healthier urban environments

The purpose of this paper has not been to reach definitive answers, but through patterns in the data, to shed light on what is happening in the cities of the EHCN who have been using physical urban development to achieve positive heath outcomes. The paper specifically poses questions that have helped to elicit understanding leading to more effective interventions.

The evaluation of the experiences of European cities, presented in this paper, can help guide cities wanting to develop a healthier urban environment and provide further insight for researchers in this

field.

WHO EHCN Phase VI has two strategic goals and four core themes (WHO, 2013). Urban development, spatial planning, transport, housing and regeneration are all everyday city functions, with non-health investment streams, they have potential of supporting population health or damaging it. It is imperative to guide activity in these domains using a health lens. An important purpose of this evaluation is to use city experience from Phase V to inform urban development for health in Phase VI. As such, and drawn from Phase VI priorities and Health 2020; key questions cities need to be asking at the strategic level are:

- How is equity being addressed in spatial policy, investments and decision-making?
- To what degree is health literacy being demonstrated in city development leadership?
- To what degree are citizens involved in neighbourhood planning empowered with a spatial understanding of health literacy?

At an intervention level, the key questions cities need to ask are:

- Are neighbourhoods being designed for all age groups?
- Have local people been involved in recognising what detracts from, or supports, healthier lifestyles?
- Is there mechanism for local health issues and concerns to influence and change local environments?
- Are healthier neighbourhoods being used to enable community cohesion and resilience?

The creation of healthier urban environments should be a critical component in the delivery of a wide spectrum of health and health equity outcomes in European cities. Guided by a desire for better health and health equity for their citizens, cities must engage public health to ask critical questions of urban environment professionals whenever they embark on physical urban investments.

References

Argyris, C., & Schön, D. A. (1997). Organizational learning: A theory of action perspective. *Reis*, 345-348.

Barton, H. (2009) Land use planning and health and well-being. *Land Use Policy*, **26**, S115-S123.

Barton, H. and Tsourou, C. (2000) Healthy Urban Planning. SPON, London.

Barton, H., & Grant, M. (2006) A health map for the local human habitat. *The Journal for the Royal Society for the Promotion of Health*, **126**(6), 252-253.

Barton, H., & Grant, M. (2012) Urban Planning for Healthy Cities : A Review of the Progress of the European Healthy Cities Programme. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, **90,** 129–141.

Barton, H., Grant, M., & Guise, R. (2013). Shaping neighbourhoods: for local health and global sustainability. Routledge, Oxford.

Barton, H., Mitcham, C. and Tsourou, C. (eds) (2003) Healthy Urban Planning in Practice: Experience of European Cities. World Health Organisation, Copenhagen.

Belfast Healthy Cities (2014) Belfast: A WHO Healthy City through 25 years . . . , Belfast. Healthy Cities, Belfast.

Bertalanffy, L. von, (1969) *General System Theory*. George Braziller, New York.

Cope, M. B. and Allison. D. B. (2010) White hat bias: examples of its presence in obesity research and a call for renewed commitment to faithfulness in research reporting. *International Journal of Obesity*, **34**, 84-8; discussion 83.

Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., & Petticrew, M. (2008) Developing and evaluating complex interventions: new guidance. UK Medical Research Council.

Croucher, K., Myers, L., Jones, R., and Ellaway, A. (2007) Health and the Physical Characteristics of Neighbourhoods: A Critical Literature Review. Glasgow Centre for Population Health, Glasgow.

Cummins, S., Curtis, S., Diez-Roux, A. V., & Macintyre, S. (2007) Understanding and representing 'place' in health research: a relational approach. *Social science & medicine*, **65**(9), 1825-1838.

==**de Leeuw (2015a) Ch4. Policy. This special issue. Awaiting citation==

==**de Leeuw (2015b) Ch3. Methodology. This special issue. Awaiting citation==

de Leeuw, E. (2001). Global and local (glocal) health: the WHO healthy cities programme. *Global Change and Human Health*, **2**(1), 34-45.

Dick, B. (2012). Action research and action learning for an uncertain and turbulent world. In O. Zuber-Skerritt (Ed.), *Action Research for Sustainable Development in a Turbulent World* (pp. 29–44). Emerald Group Publishing, Bingley UK.

Diez Roux, A. V., & Mair, C. (2010). Neighborhoods and health. *Annals of the New York Academy of Sciences*, **1186**, 125–145.

Dooris, M. (2006) Healthy settings: challenges to generating evidence of effectiveness. *Health Promotion International*, **21**(1), 55-65.

Dooris, M., Poland, B., Kolbe, L., De Leeuw, E., McCall, D. S., & Wharf-Higgins, J. (2007) Healthy settings. In *Global perspectives on health promotion effectiveness* (pp. 327-352). Springer New York.

Duncan, G. E., Mills, B., Strachan, E., Hurvitz, P., Huang, R., Moudon, A. V., & Turkheimer, E. (2014) Stepping towards causation in studies of neighborhood and environmental effects: How twin research can overcome problems of selection and reverse causation. *Health and Place*, **27**, 106–111.

Flyvbjerg, B (2001) *Making Social Science Matter*. Cambridge University Press. Cambridge.

Franck, K. A. (1984) Exorcising the ghost of physical determinism. *Environment and Behavior*, *16*(4), 411-435.

Friedman, K. (2003) Theory construction in design research: criteria: approaches, and methods. *Design studies*, **24**(6), 507-522.

Galea, S., & Vlahov, D. (2005) Urban health: evidence, challenges, and directions. *Annu. Rev. Public Health*, **26**, 341-365.

Giles-Corti, B., Foster, S., Shilton, T., & Falconer, R. (2010) The co-benefits for health of investing in active transportation. *New South Wales public health bulletin*, **21**(6), 122-127.

Grant, M. and Braubach, M. (2010) Evidence review on the spatial determinants of health in urban settings. In: Annex 2 in Urban Planning, Environment and Health: From Evidence to Policy Action. Meeting Report. WHO Regional Office for Europe, Copenhagen. pp. 22-97.

Grant, M., & Barton, H. (2013) No weighting for healthy sustainable local planning: evaluation of a participatory appraisal tool for rationality and inclusivity. Journal of Environmental Planning and Management, **56(9)**, 1267-1289.

Grant, M. and Lease, H. (2014) MOTHER REPORT: WHO EURO Healthy Cities Phase V Evaluation Healthy Urban Environment And Design: Awaiting citation

Green et al (2015) - this issue logic model chapter. Awaiting citation

Head, B. W. (2010) How can the public sector resolve complex issues? Strategies for steering, administering and coping. *Asia-Pacific Journal of Business Administration*, *2*(1), 8-16.

Jokela, M. (2014) Are neighborhood health associations causal? A 10-year prospective cohort study with repeated measurements. *American journal of epidemiology*, kwu233.

Kahlmeier, S., Racioppi, F., Cavill, N., Rutter, H., & Oja, P. (2010) "Health in All Policies" in Practice: Guidance and Tools to Quantifying the Health Effects of Cycling and Walking. *Journal of physical activity & health*, *7***(1)**, S120.

Kenzer, M. (2000) Healthy Cities: a guide to the literature. *Public Health Reports*, **115**, 279–89.

Kidd, S. (2007)Towards a framework of integration in spatial planning: an exploration from a health perspective. *Planning Theory & Practice*, *8***(2)**, 161-181.

Kochtitzky, C. S., Frumkin, H., Rodriguez, R., Dannenberg, A. L., Rayman, J., Rose, K., ... & Kanter, T. (2006) Urban planning and public health at CDC. *MMWR. Morbidity and mortality weekly report*, **55**, 34-38.

Morgan, D.L. (2014) Pragmatism as a Paradigm for Social Research. *Qualitative Inquiry*, **20(8),** 1045-1053.

Oakes, J. M. (2004) The (mis)estimation of neighborhood effects: Causal inference for a practicable social epidemiology. *Social Science and Medicine*, **58**, 1929–1952.

Pawson, R., Walshe, K., & Greenhalgh, T. (2004) *Realist synthesis : an introduction*. ESRC Research Methods Programme, University of Manchester, Manchester.

Pilkington, P., Grant, M., & Orme, J. (2008) Promoting integration of the health and built environment agendas through a workforce development initiative. *Public Health*, **122(6)**, 545–51.

Reichertz, J. (2009) Abduction: The Logic of Discovery of Grounded Theory. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, **11(1)**, Art. 13,

Renalds, A., Smith, T. H., & Hale, P. J. (2010) A systematic review of built environment and health. *Family & Community Health*, **33(1)**, 68–78.

Rydin, Yvonne, Ana Bleahu, Michael Davies, Julio D. Dávila, Sharon Friel, Giovanni De Grandis, Nora Groce et al (2012). Shaping cities for health: complexity and the planning of urban environments

in the 21st century. *Lancet*, **379**(9831), 2079.

Stead, D., & Meijers, E. (2009) Spatial planning and policy integration: Concepts, facilitators and inhibitors. *Planning Theory & Practice*, *10*(3), 317-332.

Tesh, S. N. (1988). Hidden arguments: Political ideology and disease prevention policy. Rutgers University Press, New Jersey.

Tesh, S. N. (1994) Causal debates in environmentalism. *Journal of public health policy*, **15(3)**, 298-309.

Thomas, D. R. (2006). A general inductive approach for analyzing qualitative evaluation data. *American journal of evaluation*, **27**(2), 237-246.

Thompson, S., Kent, J., & Lyons, C. (2015). Building partnerships for healthy environments: research, leadership and education. *Health Promotion Journal of Australia,* **25(3)**, 202-208.

Weeks, G. (2014) Objectively Healthy Cities. In E. Edgerton, O. Romice, K. Thwaites (eds) Bridging the Boundaries: Human Experience in the Natural and Built Environment and Implications for Research, Policy, and Practice, Advances in People-Environment Studies, Hogrefe, Boston, **5**, 19-31.

WHO Commission on Social Determinants of Health (2008) Closing the Gap in a Generation: Health Equity Through Action on the Social Determinants of Health: Commission on Social Determinants of Health Final Report. World Health Organization (Ed.). World Health Organization, New York.

WHO (2008) Zagreb Declaration for Healthy Cities. Health and health equity in all local policies. International Healthy Cities Conference 15 – 18 October 2008, Zagreb, Croatia. WHO Regional Office for Europe, Copenhagen.

WHO (2009) Phase V (2009–2013) of the WHO European Healthy Cities Network: goals and requirements, WHO Regional Office for Europe, Copenhagen.

WHO (2010) Unmasking and Overcoming Health Inequities in Urban Settings. Evolutionary Ecology (Vol. 10, pp. 1–145). World Health Organization; UN-HABITAT, New York.

WHO (2013) Phase VI (2014-2018) of the WHO European Healthy Cities Network: goals and requirements, WHO Regional Office for Europe, Copenhagen.

World Health Organization., Canadian Public Health Association., Canada., & Conference on Health Promotion (1986) Ottawa charter for health promotion =: Charte d'Ottawa pour la promotion de la santé. World Health Organization, Ottawa, Ont..

Younger, M., Morrow-Almeida, H. R., Vindigni, S. M., & Dannenberg, A. L. (2008) The built environment, climate change, and health: opportunities for co-benefits. *American Journal of Preventive Medicine*, **35(5),** 517-526.

Zoller, H. M. (2005) Women caught in the multi-causal web: A gendered analysis of Healthy People 2010. Communication Studies, **56(2)**, 175–192.

WHO (2013) Phase VI (2014-2018) of the WHO European Healthy Cities Network: goals and requirements, WHO Regional Office for Europe, Copenhagen.

World Health Organization, Hosking, J., Mudu, P., & Fletcher, E. (2011) *Health Co-benefits of Climate Change Mitigation: Transport Sector*. World Health Organization.