RESEARCH ARTICLE

Identifying intervention areas to shape healthier urban development in the United Kingdom

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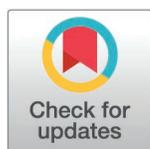
Abstract

The quality of urban environments is an important determinant of public and planetary health globally, yet often they do not provide the conditions for good health. Many of the causes of poor-quality environments are located far upstream in areas of policy-making, governance and control of the complex urban development system, involving a diverse range of stakeholders across multiple sectors, tiers of decision-making, and publics. There is a lack of clarity about the challenges involved, and where to prioritise actions to effectively transform the system towards healthier urban development. This article identifies multiple areas in the United Kingdom's urban development systems where interventions can be targeted to shape the development of healthier and more sustainable urban environments. The study sets out the main findings from the first phase of a large-scale, five year research programme. It takes a systems-based approach to specify and prioritise the upstream problems that restrict healthy urban development. We focus on two key sectors of development that affect health outcomes through a variety of pathways: property development and transport planning. We identify 50 'intervention areas', specifying the problems and where they can be tackled, and report areas prioritised for intervention. The intervention areas identified reveal three broad and mutually reinforcing themes: (i) a lack of prioritisation of health in urban agenda setting and subsequent policy making, (ii) deeper structural barriers, both national and international, and (iii) existing points for leveraging health that do not currently maximise health impacts. The findings contribute to the literature on creating healthy and sustainable urban environments, and extend debates on how health can be understood through systems-based approaches to upstream decision-making and wider structural and institutional forces. Practically, they provide potential areas of intervention for strategies towards improving the quality of urban

environments, which are essential for safeguarding future human and planetary health.

Author summary

Urban environments are an important influence on human health and environmental sustainability. Currently, many of these environments are not producing good health outcomes. Their development is shaped by many stakeholder groups and interacting factors. Some of these are, in theory, within our control (e.g., government policies), while others are largely outside (e.g., global forces). All these areas are typically outside of the scope of public health interventions, and there is a lack of clarity about what needs to change. We aimed to identify areas of critical decision-making in the United Kingdom's urban development systems where interventions can be targeted to shape the development of healthier and more sustainable cities. We identify 50 'intervention areas', specifying the problems and where they can be tackled, and report areas prioritised for intervention in a large-scale research project. The intervention areas were grouped into three broad themes: prioritising health in the policies that shape urban development, deeper structural barriers to healthy urban development, and opportunities within existing mechanisms for promoting health impacts. Our study provides new insights into strategies that are needed to improve the quality of urban environments, which are essential for safeguarding future human and planetary health.

Introduction

Urban environments, which are now home to over half the global population, are linked to a wide range of illnesses, increasingly from non-communicable diseases (NCDs), as well as substantial associated social and environmental costs [1–6]. The decisions and processes that guide their development and management have the potential to substantially improve planetary and population health through creating healthier and more sustainable environments [7]. The aim of this article is to identify where and how best to intervene in the United Kingdom's (UK) urban development system to create the conditions for developing healthy and sustainable cities that will lead to future reductions in NCDs, health inequalities and improved planetary health outcomes.

Sustainable Development Goal (SDG) 11 'Sustainable cities and communities' is based around these linkages between sustainable cities and human health [8]. Providing access to 'adequate, safe and affordable housing' (SDG 11.1), 'safe, affordable, accessible and sustainable transport systems for all' (SDG 11.2), enhancing capacity for 'integrated and sustainable human settlement planning' (SDG 11.3), and aiming to 'reduce the adverse per capita environmental impact of cities' (SDG 11.6) all offer pathways to improve the quality of urban environments and public health outcomes.

We use the term 'urban development' to refer to changes to the physical infrastructure in cities that impact on health such as buildings, transport systems, and green and blue infrastructure. While there are examples of high-quality urban environments around the world, these remain relatively rare [9,10], and negative health impacts disproportionately fall on groups who live in the worst quality urban conditions [11]. Improving the quality of urban areas is therefore an important priority for preventing NCDs as well as reducing inequalities [12]. With regards the built environment itself this could include for example the reallocation of road space to enable more cycling, or the retrofitting of housing insulation to reduce exposure to cold and damp conditions, both of which have demonstrable positive health effects [13,14]. However, the growing burden of disease and the rarity of healthy urban environments shows that more fundamental and widespread change is needed, and delivered at greater pace in the face of the growing climate and ecological crises [15,16]. The range of issues at play are numerous, interconnected and deeply complex: for example, issues of short-termism and a lack of systems thinking are deep rooted and permeate all levels of decision-making [17,18]. Cities are both significant contributors towards and susceptible to the consequences of climate change and other environmental risks, and have detrimental environmental impacts on a global level [19,20]. Creating more sustainable and healthy cities that are resilient to climate change therefore is an important avenue for protecting future human and planetary health. Achieving this transformative change will require multi-action intervention far upstream in the economic, legal, and political systems of decision-making [21,22].

Urban development in the UK is a complex 'system of systems' [23] - referred to here in the singular as 'the system' - involving a very wide range of sectors, stakeholders, and tiers of governance [24].

The UK context has many unique characteristics, for example, 80% of new homes are built by volume housebuilders [25] - former construction companies with major land holdings who take on development risk - while the amount of self-built or self-commissioned housing is some of the lowest in Europe [26]. In addition to the dominance of volume housebuilders in residential development delivery, the commercial real estate market (offices, retail, warehousing) is the largest individual industry in the UK at 13.1% of Gross Value Added [27]. The links between their activities and health outcomes are significant, e.g.,: volume housing is predominantly low density and car dominated, which contributes substantially to commuter traffic and urban air pollution [28]; the real estate industry on the other hand struggles with affordability and provision of green space [29]; and both have a significant degree of control over the quality of the retail offering and the associated provision of unhealthy food and drink [30]. On the transport side, the UK has invested heavily in private cars since the 1960s while reducing railway infrastructure, and its city public transport networks are amongst the worst performing in Europe [31,32]. However, in both transport and housing there are many similarities with other countries worldwide, particularly upstream in terms of the decision-making apparatus and institutions across Western industrialised nations, such as the dominating agenda of economic growth, shareholder-driven markets, and property rights [33,34].

A relatively unique feature of UK governance is that it is highly centralised. Many powers over urban development are delegated to the three devolved nations - Scotland, Wales and Northern Ireland – including on transport, housing, environment and planning, but the UK Parliament (in London) controls macroeconomic and fiscal matters, including most tax-raising powers. Within England the local authorities have far less power than the devolved nations, which has led recently to increasing calls for devolution to city-regions. The links between devolution and health are especially well documented on issues of healthcare provision, but also on tackling the wider determinants of health, including on matters relating to housing and transport investment [35]. A final important point is that the UK, especially London, is highly networked globally, which has significant implications for health given global real estate demand affects issues such as affordability.

The disbursement of power across these numerous stakeholder groups and sectors means there are many potential areas of focus for interventions. Therefore, this article specifies 'intervention areas' by: a) identifying the problems that restrict the development of good quality urban environments (problems); and b) the level and/or sector in the urban development system where the problem exists and can be addressed (locations).

The article is structured as follows. Firstly, we summarise the literature on systems approaches for investigating complex upstream public health problems. We then introduce the current study and outline the methods used to identify, locate, and prioritise the problems preventing healthier urban development in the UK. We present the full list of areas identified, and those prioritised for intervention, before discussing the implications under three headings drawing on key themes in our findings: (i) prioritisation of health in agenda-setting, (ii) global and structural barriers to health prioritisation, and (iii) opportunities for operationalisation of health improvement within existing points of leverage. These findings offer important contributions to the literature on the challenges and opportunities for healthy place-making and inform strategies for intervening within upstream decision-making processes in order to enable healthier outcomes.

Upstream interventions in a complex system

Tackling the causes of NCDs requires inter- and multi-sectoral actions by stakeholders who have the power to bring change, many of whom will be outside the health sector [36]. The term 'upstream' is used to describe those risk factors or wider determinants of health that lead to disease further 'downstream' in the future [37]. In the sphere of public health and urban development, upstream risk factors often appear to infer only the quality of the urban environment itself [38]. This, we argue, is more 'mid-stream' given the importance of decision-making environments further upstream as a critical underlying cause [39,40] where in the UK health is rarely a priority [41]. For example, in the UK's highly centralised political system, national government sets the policy and legal context for urban development and establishes targets and objectives for local delivery that stakeholders throughout the system must deliver against [42,43]. Aspects of urban planning are devolved to regional and local authorities where responsibility is held locally over processes such as land allocation and planning decisions, although fiscal control and resource is limited and the level of devolved powers and responsibilities varies across the country [44]. Furthermore, in urban systems it is the private sector stakeholders such as landowners, investors, property developers and contractors who are most influential and who drive the delivery of development through control of critical assets including finance and land, as well as control of the development process itself though construction [24,45].

Across these upstream areas there are many barriers to prioritising health outcomes [37,40]. A key challenge is identifying where to intervene and which specific problems are preventing or restricting healthier urban development. None of these problems exist in isolation. Instead, they interact and interconnect in complex systems with health outcomes as one result. Meaningful change in the urban development system is therefore unlikely to be achieved through narrowly defined interventions targeting one level or stakeholder group [46]. Instead, disrupting the system to improve future health outcomes requires systems approaches that consider the functioning of whole, multiple and interconnected systems rather than taking individual parts of the system in isolation [46–48]. For the purposes of this paper, we describe systems approaches as those "concerned with the structure of a system, understanding, and defining its 'boundaries', and making sense of the relationships between 'agents' and the wider system" [49].

The complexity of impact pathways linking health to their wider (social, economic and physical) determinants has led to increasing interest in systems approaches targeting multi-action interventions on different factors and levels of influence for improving public health [50,51]. Each individual intervention may only have a limited impact on its own, hence the need for multiple actions, but the cumulative effect may be far more substantial, as small changes in one part of the system can have far-reaching effects elsewhere [50,52].

Systems approaches should not be viewed as a panacea for preventative health, nor are they sufficient on their own [48]. However, thinking in systems and applying associated methods may provide vital support to existing approaches, helping researchers to improve their understanding of complex problems, the impact of interventions on the system and how this might contribute to changing health outcomes [49,47]. They can help to identify and prioritise where to focus resources to maximise impact, and how to identify and avoid unintended consequences.

The current study

This article reports findings from the first phase of a 5-year transdisciplinary research project, Tackling Root causes Upstream of Unhealthy Urban Development, which aims to change how decisions about urban development are made to develop healthier urban environments. The project's mission is to shift urban development decision-making towards prevention of NCDs and health inequalities, including those linked to planetary health outcomes, by developing and testing a multi-action intervention in the UK's property and transport sectors. In its first phase, the project sought to identify the 'intervention areas' (IAs), specifying the problems and the level and/or sector in the system where they are located. This study reports the findings of this work, guided by an overarching research question: Where in the UK's urban development system should we intervene to shape the development of healthier urban environments? Sub questions included:

i)   What are the specific problems in the system that need to change?

ii) Where in the system can these problems be addressed through interventions?

iii) Which intervention areas should be prioritised?

Materials and methods

Summary of approach

A comprehensive investigation of problems and context is a critical, iterative part of intervention development to help teams understand where change is needed and to provide a rationale for action. This need to develop a deep understanding of the problem space is not just a common feature in guidance for health interventions [53–55], but in other disciplines too, for example problem structuring methods in research operationalisation [56].

A participatory approach to problem identification was designed to support the development of shared and in-depth understandings across the research team and relevant stakeholders of the upstream problems. It was intended to provide a strong and justified grounding for the development of interventions in the second phase of the project. It took place through a three-stage process (Fig 1). Stage 1 focused on mapping and understanding the urban development systems in question (focusing on large-scale property development and city-region transport planning). Through this process the evidence base was developed for the team to make informed decisions about the direction of the research in stage 2, resulting in identification of a long-list of IAs. In stage 3, priority IAs were identified from this long-list through prioritisation exercises and researcher workshops, and refined through stakeholder and advisor consultation and researcher discussion.

The process was led by an intervention co-ordination team of six researchers with expertise in urban planning and development, public health intervention design and evaluation, engineering and systems approaches, moral philosophy and the law. The co-ordination team met on a weekly basis throughout the project's problem identification phase to design, refine and implement the process. Its development and scope were informed through consultation with the project's researchers, its External Advisory Board, which included experts from the public and private sectors in public health and urban development, as well members of the lay public and case study partners in local and regional government. Engagement with these partners about the process and our understanding of the problem space continued throughout problem identification. We have described in detail elsewhere our approach to stakeholder engagement in this research programme and discussed the challenges around meaningfully involving the wide range of stakeholders who affect and are affected by upstream urban development decision-making in the UK [57].

Stage 1: Mapping and understanding the system

Stage 1 (March 2020 to December 2021) involved the development of the evidence-base to support our understanding of the system under investigation, and the wide range of problems restricting healthier urban development. The evidence base was formed from four sources: first, a pilot study of 30 interviews that identified barriers and opportunities for
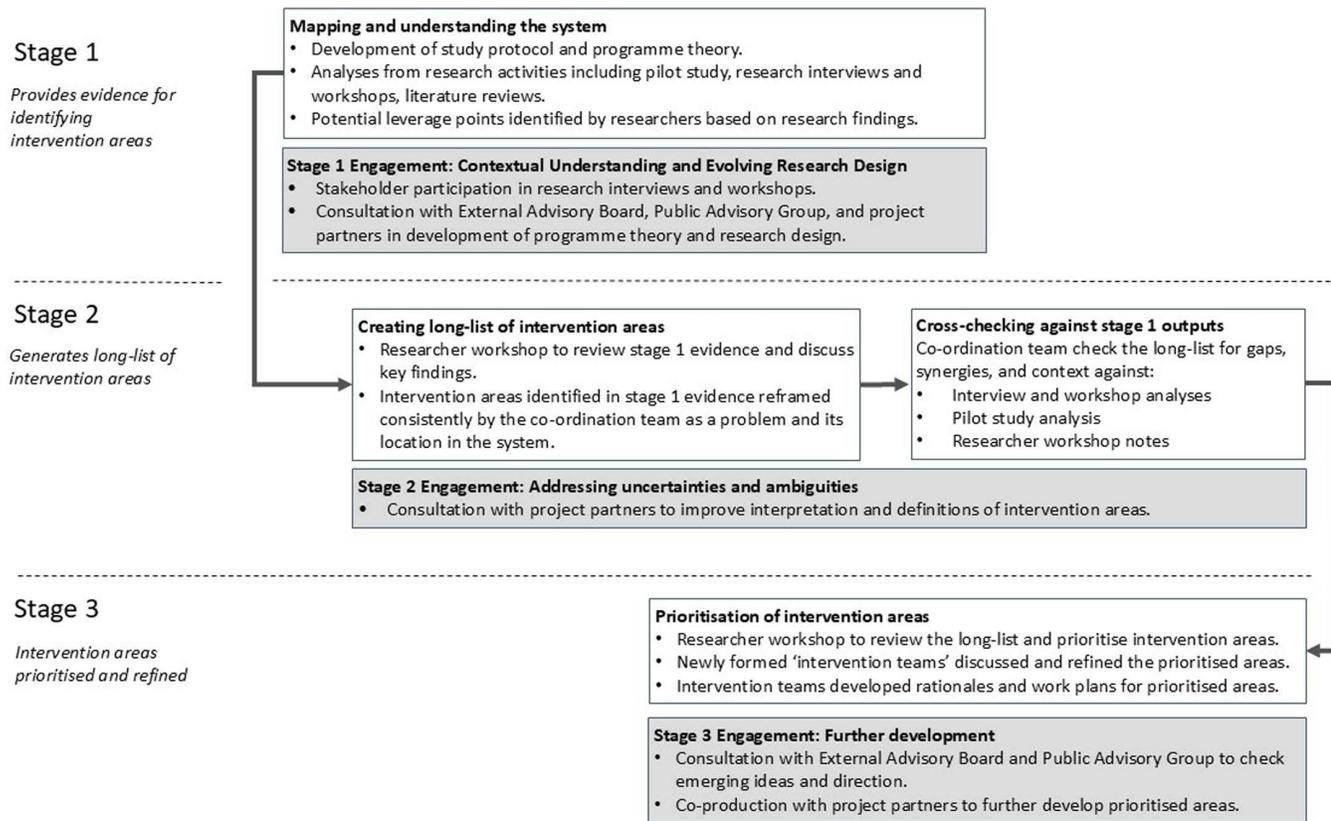
Fig 1. Process for identifying and prioritising intervention areas.

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upstream intervention [24]; second, literature reviews of core concepts for understanding the system [58]; third, in depth interviews with 132 stakeholders and four supporting systems workshops with an additional 47 stakeholders exploring key drivers; and fourth, the development of systems maps visualising these decision-making processes combining interviews and workshop data [59]. Stakeholders were identified through snow-ball sampling based on a set of criteria developed internally by the research team and based partially on criteria proposed by Reed: interest, influence, and access [60]. Those who participated in the research represented a wide range of perspectives and experience, including: officers, civil servants and advisors in local and national government departments with transport, housing, public health and environment roles, elected officials, and private sector stakeholders in real estate, property development, finance and consultancy. Based on their analyses of these interview and workshop data, the research team nominated potential leverage points where intervention could support healthier urban development.

Stage 2: Identifying intervention areas

Stage 2 involved the compiling of a long-list of 50 IAs that was rooted in Stage 1 evidence, but refined and further developed through consultation with stakeholders and the research team. In January 2022, the research team participated in two half-day workshops to discuss themes in the stage 1 research findings and their provisional ideas based on these for the problems to address through interventions in the next phase of the research programme. Following these workshops, the intervention co-ordination team systematically searched all stage 1 outputs to identify IAs in the data. Through an

iterative process, the IAs were extracted and reframed to include the specific upstream problems restricting healthy urban development and the level or sector in the system where the problem can be addressed. These formed an emergent list, which was cross-checked against all outputs as well as notes taken during the research team workshops.

A challenge was to create a list that others could understand and meaningfully engage with. We firstly grouped the IAs by their location in the system. This helped us to understand where interventions could be targeted and what stakeholder groups were the problem holders. The specificity of IA location varied based on the nature of the problems, with many clearly located in a specific sub-sector (such as property developers) or government department (such as the Department for Transport). Others were located more broadly across national and/or local government – defined as all sub-national government authorities - rather than being attached to specific departments. Additionally, some problems were perceived as universal throughout the system rather than attached to any type of organisation or sector. Through this process we also looked for commonality within the types of problems represented across the IAs, and grouped them into broad problem themes that built on themes in the stage 1 findings that had been discussed in the two researcher workshops. This helped to make sense of the IAs and the underlying factors preventing healthier development, and to think about the types of interventions that could be required in response.

Points of ambiguity or uncertainty raised in this process were resolved through discussion with the wider research team and consultation with external partners: for example, if unclear at what point or level in the system the intervention should target, or where seemingly conflicting perspectives about the problem were represented. The list was presented to our External Advisory Board and Public Advisory Group for sense-checking and to identify any major gaps.

Stage 3: Prioritising and refining intervention areas

The final stage in problem identification involved prioritising IAs from the long-list, and refining them to be taken forward into the second phase of the project: intervention development. Selected IAs needed to reflect not only the problems identified in our evidence as being most significant for preventing healthier development, but also those that would best enable the team to follow the project's goals of improved health through improved policy and practice. Prioritisation and refinement of IAs was therefore supported by three guiding criteria: selected IAs should (1) have a demonstrable pathway to improved health outcomes in the future, with preference to those IAs that have the greatest potential impact, (2) be feasible within project constraints including resources, team expertise, time, and (3) impact upon upstream policy and practice. The criteria were developed by the intervention co-ordination team based on the project's programme theory and goals as set out in the research protocol [61].

In March 2022 the whole team participated in a third researcher workshop to prioritise IAs. In the first stage, researchers worked as a whole group to indicate which of the 50 IAs should be taken forward. In the second stage, they re-grouped into 'intervention teams' based around shared interests and expertise in the list of prioritised IAs. Between April – June 2022, intervention teams continued to develop and refine the IAs they had selected based on their expertise and understandings of the system, additional analysis of interview and workshop data, and further ongoing stakeholder engagement. This included developing a full rationale for each selected IA, with terms of reference, work plans and logic models setting out: how and why addressing the problem in that location could in the future lead to improved health outcomes, detail on the supporting evidence in the project and wider literature, and consideration for how it might relate to other IAs.

Results

Initial intervention areas and underpinning themes

In total, 50 IAs were identified. Table 1 presents this long-list, with IAs grouped by location in the system. They varied in nature with overlapping problem types within and across different levels and sectors in the system. Within the long-list in Table 1, the co-ordination team proceeded to group the IAs into three broad themes of the types of problems restricting healthier development represented across the list:

Table 1. Long list of IAs identified, grouped by 'location' in the system.

National government
1. Lack of health impact appraisal in emission data from buildings (Department of Levelling Up, Housing & Communities)
2. Lack of active travel expertise at key points in transport sector
3. Health insufficiently prioritised in national funding criteria (Department of Levelling Up, Housing & Communities, Department for Transport, Treasury)
4. Urban development standards ineffective (Department of Levelling Up, Housing & Communities)
5. Health insufficiently considered in transport appraisal (Department for Transport)
6. National government urban development agencies ineffective
7. Lack of regulatory requirement for valuing health in urban policymaking
8. Regulatory requirements not fit for purpose in urban policy areas (e.g., space, land disposal)
9. Lack of systems thinking
10. Lack of shared agenda and resource on preventing poor health
11. Health is not prioritised in urban development regulation/ policy
12. Lack of provision of long-term, secure, affordable and regulated public and private rental
13. New-build housing prioritised over retrofitting
14. Appraisal locks in bare minimum (Department of Levelling Up, Housing & Communities)

Private sector
15. Asset owners' insufficient contract mechanisms for prioritising health
16. Asset Owners' and Developers' land acquisition mechanisms do not prioritise health
17. Shareholder short-termism
18. Property development and land market dominated by a small number of large-scale volume housebuilders
19. Volume house-builders are too powerful
20. Lack of developer understanding about repercussions of decisions on health

Local government
21. Lack of legal confidence and expertise
22. Health agencies not involved in urban planning
23. Health not prioritised consistently across local plans

National and local government
24. Lack of public engagement with policy
25. Lack of health evidence used in policymaking
26. Responsibility for health split across departments
27. Large scale regeneration schemes unpopular amongst policymakers
28. Short-term political cycles
29. Prioritisation of cars over other forms of transport
30. Health is not prioritised by senior decision-makers
31. Imbalance of power and resources between central and local levels

Private and public sectors
32. Land too expensive (Local and national landowners)
33. Lack of data on local residents' perceptions and experiences (Local government, Asset owners, Developers)
34. Lack of partnership working (Local government, developers)
35. Differences in interpretations of planning policy and health (Local government, developers)

Professional bodies
36. Professional body standards insufficient in terms of health
37. RICS viability appraisal locks in bare minimum

Universal
38. Lack of shared understanding about what "good" public engagement is
39. Lack of tools/ mechanisms for valuing health
40. Health insufficiently represented in Key Performance Indicators
41. Lack of incentives for private sector to prioritise health outcomes
42. Lack of leadership, culture and ambition to prioritise health
43. Wider determinants of health under-recognised
44. No one wants to pay for public realm
45. Lack of health data linked to different forms of development
46. Lack of understanding about what form healthy development should take
47. Lack of awareness of links between healthy environments and buildings, and productivity
48. Lack of public understanding and trust about the development system
49. Public consultation not early or deliberative enough
50. Community engagement not valued, communities disempowered

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i)   firstly, that a lack of prioritisation of health in upstream agenda setting (and subsequent policy making) substantially limits incentives and opportunities for enabling healthier outcomes across the urban development system;

ii) secondly, that there are numerous deeper, structural barriers to prioritising health in urban development that sit far upstream and represent substantial challenges for change;

iii) thirdly, that there are a range of connected opportunities for leveraging health that may be mutually reinforcing and so could, collectively, start to shift the system towards greater prioritisation of health.

These themes cut across locations in the system and suggest key consideration for the improvement of health outcomes in urban development.

A substantial number of IAs related to the first theme: prioritising health in agenda setting. Across the system, our findings point to how the relationships between urban development and health are not well recognised (IA 43, 46, 47) and that there is a lack of ambition and leadership to prioritise health in this space (IA 42). The role of leadership and policy-setting lies at the root cause of many of the IAs (e.g., IAs 3, 7, 19, 24, 25). The specific point about health not being prioritised by senior government decision-makers (IA 30) appears to sit at the heart of these issues, and is therefore an example of where intervening could have greater impact on health improvement as it effects multiple other areas. This is alongside multiple problems in other parts of the system, such as lack of systems thinking (IA 9) and a lack of shared agenda on health prevention (IA 10), which appear to result in health not being prioritised in regulation (IA 8) and policy (IA 11, 23, 25).

A second theme includes a range of global and structural barriers to prioritising health across multiple IAs. They represent underlying problems that shape the structures that influence the behaviours and decisions featured in the other two themes. The lack of leadership and systems thinking may be linked with the perennial challenge of structuring and communicating across government, with further evidence of silos and a lack of joined up working. For example, responsibility for health is dispersed across government teams, with health agencies insufficiently integrated in urban-related policy-making across government (IAs 6, 22, 26). The lack of joined up working is not only within government, but in how authorities work with private sector partners (IAs 34, 35). Structural, commercial factors also emerged as important IAs, such as the cost and control of land (IAs 37, 44) and the lack of variation and competition across the homogenised housing delivery sector (IAs 18, 19). Short-termism was identified as a problem both in public sector political cycles (IA 28) and private sector financial reporting (IA 17), for example: the remote, but influential role of shareholder demand on publicly listed companies, which dominate urban development delivery across the UK, both residential and commercial, and their expected levels of return on investment through very short-term (quarterly) reporting.

Finally, many IAs focused on points of leverage for health in decision-making. This included recognition that mechanisms to enable effective health-oriented decision-making are lacking throughout the system (IAs 39–41). Six IAs (3–5, 15, 16, 36) focused on specific mechanisms where health is insufficiently included: contract and land acquisition mechanisms, funding criteria, standards, transport appraisal or key regulatory requirements. Additionally, a lack of legal confidence and expertise in local government restricts the use of the law to promote health in planning decision-making (IA 21). Universal challenges included the availability of data and linked mechanisms (e.g. IAs 45–46), and of effective public engagement to support healthy urban development (IAs 24, 33, 38, 48–50). With regards to public engagement, key difficulties appear to be a lack of understanding from all sides on how to engage effectively given the complexity of the challenge space, and therefore about the purpose of engagements, and that public input in decision-making is not widely valued in the system or done well. The public is also, clearly, not one homogenous group, but rather a multitude of groups and individuals with widely varying and often conflicting views.

Prioritised and refined intervention areas

In total, 17 IAs were prioritised, split across eight different locations in the system (Fig 2). Collectively, the prioritised IAs covered aspects of national, regional and local governments, as well as in the private sector a focus on property (buildings
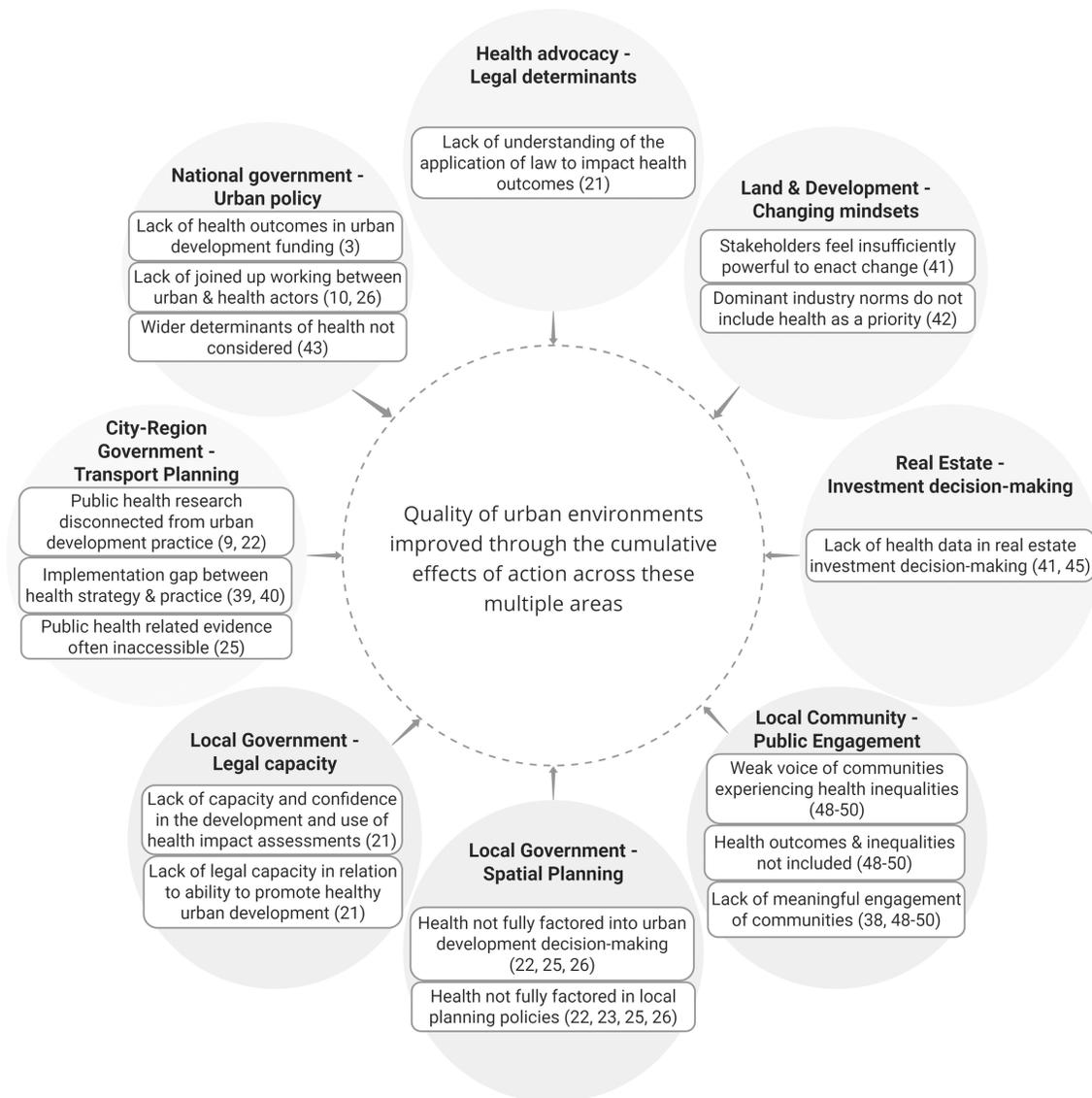
Fig 2. Prioritised intervention areas. Numbers correspond to the numbers in the long list of IAs in Table 1**. Intervention areas were prioritised from the long-list of 50 through a research team workshop, further analysis, and stakeholder consultation.**

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and land), and engagement between members of the public and decision-making processes. The prioritised IAs were all developed from one or more of the original list. For example, within the national government IAs, 'Lack of health outcomes in urban development funding', 'lack of joined up working between urban and health actors' and 'wider determinants of health not considered' are based on IAs 3, 10 and 26, and 43 respectively. In some cases, the IAs in the long-list were subject to further development through additional investigation of the problem space. For example, the three prioritised community-located IAs were based upon IAs 38 and 48–50, but refined through further exploration with the project's Public Advisory Group. Similarly, further analysis around the problem of a lack of legal capacity in local government (IA 21) led the team to identify an additional IA of the lack of legal capacity at national level.

Discussion

Our investigation pointed to a wide and diverse range of problems, and associated interventions needed, at multiple levels and points in the system. We discuss in turn each of the three broad themes presented in our results section and the areas of synergy between the identified IAs. The interactive effects between IAs highlight the importance of looking at health and urban development at a systems level to deliver long-term health benefits.

Prioritising health – agenda-setting

According to best practice guidance, urban planning policies should prioritise health as one central factor for consideration [1,7] and include clear and measurable health targets [62,63] if they are to deliver healthier places. However, our investigation of the problem space identified numerous examples of where health is not prioritised at national or local level within policy, regulation, or other forms of agenda-setting for urban development. Across the system, this included a lack of leadership and ambition to prioritise health (IA 42). More specifically, a lack of direction towards ill health prevention amongst senior leaders at national and local government levels was highlighted (IAs 11, 30). Instead, a common shared agenda for urban development in the UK is that of economic growth with health, in contrast, rarely an important consideration at policy level [41,64]. It has long been argued that focusing on growth outcomes and GDP-centred approaches to understanding success is counterintuitive for delivering on SDGs [65,66]. Shifting mindsets across the system from prioritising growth over all other outcomes to measuring success of urban development through sustainability and wellbeing outcomes is beyond the scope of our research project, but is arguably an intervention area of its own for delivering the type of transformative change that is required [65,67].

The system-wide consequences of health not being a priority for senior decision-makers were evident in our analysis across a range of areas. For example, health is not included as an important factor for consideration in areas such as land allocation and acquisition, national government funding criteria, or when appraising the impacts of developments, and yet these mechanisms are fundamental to urban development processes [68,69]. This lack of prioritisation limits the incentives and resources for stakeholders across the system to think about health outcomes. Support from senior political leaders is often suggested to be critical for creating the conditions for cross-sectoral action on health, such as accountability, long-term commitment and ownership of the agenda [70–72]. As with most other areas, fostering of leadership and 'political will' alone for cross-sectoral action on health is no guarantee of success [73]. That is not to say that leadership from key individuals in the system is unimportant. However, a wide range of other factors affect, and are affected by, the extent that health is prioritised in this highly complex system so leadership, arguably, should be pursued with limitations in mind and alongside a suite of complementary activity.

There are many potential synergistic effects between IAs under this theme of agenda setting between the role of national government and all other areas, via the setting of fiscal, regulatory or policy incentives. For example, were health to be prioritised across government (IAs 3, 5, 7, 10, 11, 25, 26, 30, 40–42) this could affect private sector contract and land acquisition mechanisms (IAs 15–16), shareholder short-termism [17], and possibly diversify the housing and real estate delivery options [18,19]. It might also change the prioritisation of health at local government level (IAs 22–23), the price of land [32], professional standards [36] and the maintenance of public realm (IA 44). There would also likely be many synergistic effects between the different levels and sectors. For example, if the private sector were incentivised to develop in certain areas and not others due to health being factored into the price of land (IA 16), this would support local government in prioritising health in local plans [23], and vice versa. Where change is seen across sectors and levels in the system that is where we will see the most significant benefits for health. We must recognise however that there are powerful forces maintaining the status quo that act as barriers to such effects, such as: institutional inertia, short-termism, powerful lobbies, social media, and the financial repercussions of the 2008 financial crash and the Covid-19 pandemic [30,74,75]. Even so, the findings from this study suggest that this key issue of health prioritisation and agenda setting could have substantial ripple effects across linked systems, especially if done by Government.

Global and structural barriers to health

Looking beyond the role of individual decision-makers is necessary as urban systems are 'extremely vulnerable to the prevailing political economy' [76] and to institutional and global influences that impact on agenda-setting and prioritisation. Our analysis highlights the importance of a range of political, commercial, regulatory and governance factors that restrict opportunities for decision-makers to prioritise human and planetary health.

For example, linked strongly to issues around agenda setting were those of short-term horizons (IAs 17, 28), which have far-reaching impacts across the public health and social care systems [77,78]. Actions to tackle the wider determinants of health will rarely have immediate health benefits: it requires long-term funding and agendas, which may seem unattainable, and poorly aligned with more immediate political agendas [79,80]. A recent example was seen in Scotland in 2019 when the then First Minister, Nicola Sturgeon, joined several other nations – New Zealand, Iceland, Finland, Wales and Canada – in supporting the Wellbeing Economy Alliance initiative [81], which placed (long-term) wellbeing alongside (short-term) economic growth [82] (Scottish Government, 2019). A more typical example of short-termism in the UK has been the previous Conservative Government's plans to scale back on its own climate policies, substantially delaying plans to decarbonise all sectors, alongside giving permission to a substantial number of new oil and gas licenses in the North Sea [83]. The long-term public and planetary health benefits from pursuing policies to improve air quality, for example, are substantial and effectively irrefutable [84]. However, the decision to slow progress was based upon political pressures prompted by the ongoing 'cost of living crisis', business pressure, and an electoral strategy based on polarisation [85]. The Labour Government elected in 2024 has re-reversed this U-turn, but this too underlines the significant short-term swings resulting from election cycles: Scotland likewise has had several changes of First Ministers since 2019 leaving in doubt the Wellbeing initiative.

Short-termism within the private sector is well recognised too as a barrier to longer-term health objectives, an issue the former Governor of the Bank of England termed the 'tragedy of the horizon' [86]. Quarterly reporting to shareholders has been in the spotlight with the widely held concern that it appears to be crowding out the long-term view [87,88]. In UK housing, volume house-builders are typically large companies listed on the London Stock Exchange that build and sell homes, leading to a relatively short-term (financial) interest in each place [24,75] unless part of an very large scheme. Pension funds, with their longer-term revenue streams, are often seen as providing the solution, but these too are not immune: their time horizons can be less than people realise, and issues for longer-term investors relate more to affordability as rents increase, particularly in city centres, leading again to accusations of 'profiteering' and short-termism [89].

Other barriers to change identified in our research were a range of structural issues such as the cost of land (IA 32), and the balance of power between local and national governments and private-public sectors (IAs 31, 34).

These factors combined point to deeper, messier issues that lie further upstream and are largely outside the control even of political leaders and policy-setters [18,90]. There are particular challenges relating to global factors, for example in areas such as globally networked real estate investment and human capital [45] and linked commercial determinants of health [91], the ongoing coupling of transport with economic growth [92] and the global financialisation of urban infrastructure [93]. A clear challenge therefore for policy makers is how to prioritise health in agenda setting in the face of such pressures and wider influences, and to overcome 'the resistance of vested interests and lobby groups to produce more transformative policies' [94].

Potential synergistic effects under this theme overlap substantially with the theme above, though at the same time are one step removed. Global structural factors are complex and they impact across all tiers and sectors of decision-making. The challenge under this theme therefore is not so much about identifying how certain interventions will affect others, but how to prioritise health (IA30) in spite of these various external pressures. What takes prominence therefore is the need for systems thinking (IA9) in order to recognise which factors and interventions are *exogenous* (outside of our control) and which are *endogenous* (within our control). The example given above of the Wellbeing Economy Alliance initiative [81] shows how some government leaders – notably, most of whom were women - can challenge the status quo where there is

a combination of systems thinking (IA9), leadership (IA30) and a collective shared agenda (IA10). Leaders who prioritise long-term health and wellbeing like this prioritise both their country's resilience as well as its economy, which Covid-19 has showed emphatically are both highly dependent on population health [95]. In terms of specific synergistic effects across the intervention areas identified, health prioritisation combined with systems thinking should ripple across many other areas, such as: buildings and transport appraisal and associated policy (IAs 1, 5, 7), contract and land allocation mechanisms (IAs 15–16), shareholder regulation (IA17), local Government policy and training (IAs 21–23), devolution (IA 31), land valuation (IA 32), professional standards (IA 36) and key performance indicators (IA 40).

Coordinating existing points of leverage

While recognising the influence of institutional and global factors, several problem areas relate to the mechanisms through which health is, or should already be, operationalised in the system, for example: by including or improving consideration of health in areas such as impact assessment, local planning law, and funding allocation; increasing access to and use of health evidence and data; and integrating health expertise and stakeholders into decision-making processes. While evidence of actual improved health outcomes from health and sustainability impact assessment is weak, and while it may seem peripheral in the face of the wider, structural factors outlined above, there is strong evidence that it can change policy and practice, which should contribute to improved health outcomes [96,97].

It is also widely argued that increasing collaboration between public health and urban development stakeholders, including the lay public, and increasing alignment of health and urban agendas, should contribute to improving health outcomes [7,57,98]. At the local level, for example, community engagement in urban decision-making can enhance the development of sustainable cities and citizen wellbeing outcomes [99–101]. Integrating health expertise and evidence into other policy areas is not easy however. Urban development decision-makers have a range of existing agendas that they prioritise and must deliver on, which limits the extent to which they prioritise health [41]. Furthermore, it cannot be presumed that all stakeholders will necessarily value health evidence or input from the health sector [102], particularly while there is a lack of incentive for them to do so. This points to the need to think holistically about the linkages between health and other agendas, and how improving population health is not only an issue for the health sector [102], for example by combining evidence of the health co-benefits of climate action, which is a significant concern for the finance and real estate industry [103]. Demonstrating to decision-makers how approaches to improve health outcomes align with and can help to deliver on existing agendas that drive urban development can incentivise action [104], although these other agendas may ultimately trump health considerations.

There are clear synergies between addressing the IAs under the agenda setting theme and here under coordinating existing points of leverage. For example, if health can be prioritised in agenda setting this would likely increase opportunity for integrating health evidence (e.g. IAs 1, 24, 25) and stakeholders including the public (IAs 48–50) into urban development decision-making. Increasing community involvement would also likely have ripple effects too, for example by supporting developers to better understand the perceptions and experiences of local residents and how decision-making in the development process can affect health (IAs 20, 33). This in turn could lead to improved public engagement with policy (IA24), greater involvement of the community in land-use decisions, for example, through community land trusts (IA16 and IA32), and improved decision-making within short-term political cycles (IA28).

Study limitations

The approach we followed was designed to provide an evidence-based, systematic, and transparent process to identify clear areas of intervention in a complex system. However, we recognise that the IAs we identified are not a complete list of the upstream problems preventing healthy urban development, and those prioritised by the team are not necessarily the only crucial areas of focus. The process was inevitably shaped by the boundaries and scope of our research in stage 1, and the scale of the problems identified in many IAs require actions that are beyond the resources and timelines of

any single research project to address. For example, short-termism across public and private sectors and the imbalance of power between local and national authorities are examples of long-established challenges in the UK that are highly resistant to change, yet are among the most crucial problem areas restricting healthier urban development. They are highly unlikely to be 'solved' quickly, as they have underlying causes that have been reinforced by decades of policy and the challenge involved, but arguably are crucial for enabling the scale of change that is required. Secondly, the study was restricted to considering problems relating to large-scale property development and transport systems. We recognise that other aspects of urban development largely outside of our scope, such as commercial buildings and community infrastructure, will also have significant impact on public and planetary health. Thirdly, the particular expertise of the stakeholders and researchers involved is likely to have shaped IA identification. Comprehensive engagement across the many diverse actor networks in our system was impossible and it is inevitable that some stakeholders had a greater influence than others on the development of our understanding of the system. The selected IAs also inevitably reflected the priorities, expertise and experiences of the researchers who were going to be taking them forward in the next phase of the project.

Conclusion

Through a large-scale, participatory, systems-based approach to problem identification, this study has specified a range of intervention areas that present both barriers to and opportunities for healthier placemaking. Many sit far upstream from where many more traditional public health interventions focus, yet appear critical to creating the healthier and more sustainable cities to protect future human and planetary health. Focusing on these wider structures that set the context for urban development is key to advancing understanding about the determinants of health and to improving public health outcomes [22].

Nuanced systems approaches can help research teams to develop understanding about how complex systems function, and to prioritise areas of intervention that can change the system towards improved health outcomes. For example, in the IAs prioritised in our programme, by addressing attitudes to healthy urban development within in private sector work, we create opportunities for developing more ambitious policy frameworks within national and local policy, likely followed by higher rates of implementation in practice. Creating spaces within private industry and government policy where meaningfully incorporating health is increasingly acceptable and expected also creates spaces for meaningful conversations with local communities about their lived experiences. Addressing how health is factored in local government planning policies may in turn opportunities for local communities meaningfully engage with planning processes. Importantly, intervening in any one of these areas alone is unlikely to be sufficient – it is by bringing changes across multiple areas that we can hope to have cumulative effects that could lead to the development of higher quality and healthier, sustainable, and resilient urban areas in the future.

Many of the IAs identified in this study are by their nature highly challenging areas to intervene in and will not be easily overcome, such as short-termism in public and private sector urban development, the lack of prioritisation for health in agenda setting, the imbalance of power between national and local governments, and the power of private sector federations and lobby groups. However, these factors and other long-established commercial, political, and economic factors may start to be changed through strategies that target other, connected factors elsewhere in the system. For example, prioritising planetary health and integrating health evidence across a range of urban development processes and sectors upstream, improving public involvement in decision-making, and supporting more holistic thinking about health and urban development agendas could have knock on effects on those factors further upstream that appear especially resistant to change. Our findings therefore contribute to the evidence on the creation of healthy and sustainable cities [1,15], and extend debates about how systems-based and multilevel approaches can help our understanding of health as an outcome of upstream decision-making processes and structural forces [22,51]. They provide evidence to support potential areas of intervention for strategies seeking to improve the quality of urban environments and to create more resilient and sustainable cities to safeguard public and planetary health.

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