



# Location, location, location: understanding the geography of health policies in local spatial plans in England

Michael Chang & Matt Hobbs

**To cite this article:** Michael Chang & Matt Hobbs (2025) Location, location, location: understanding the geography of health policies in local spatial plans in England, *Cities & Health*, 9:3, 415-424, DOI: [10.1080/23748834.2024.2408516](https://doi.org/10.1080/23748834.2024.2408516)

**To link to this article:** <https://doi.org/10.1080/23748834.2024.2408516>



© 2024 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



Published online: 04 Oct 2024.



[Submit your article to this journal](#)



Article views: 1721



[View related articles](#)



[View Crossmark data](#)



Citing articles: 1 [View citing articles](#)

## Location, location, location: understanding the geography of health policies in local spatial plans in England

Michael Chang <sup>a</sup> and Matt Hobbs <sup>b</sup>

<sup>a</sup>School of Civil, Aerospace and Design Engineering, University of Bristol, Bristol, UK; <sup>b</sup>School of Health Sciences, University of Canterbury, Canterbury, New Zealand

### ABSTRACT

Statutory documents such as local plans are used by each local authority to manage the sustainable use and development of land. Policies within these plans determine how decisions on urban development projects are made and therefore have consequences for population health and wellbeing. Health conditions and determinants vary considerably by the geography of place. This paper builds on a health census of local plans adopted by local authorities in England between 2012 and 2023. The census found variations in the presence of and coverage of health across a spectrum of measures we would associate with the wider determinants of health. Through further geospatial analyses and mapping, the research focused on the relationships between the existence of health-focused policies in local plans, the geography of local authorities and selected exploratory cohort of local contextual indicators. It posited that there is significant potential to resource further analyses to enable a better understanding of health and geographical disparity patterns inherent in local plans. The results can enable a strategic approach to focus efforts on specific geographies to maximise health in local plan coverage and promote healthier communities.

### ARTICLE HISTORY

Received 4 July 2024

Accepted 19 September 2024

### KEYWORDS

Local plans; healthy planning; spatial planning; public health; health geography

### Introduction

In his lecture on the ‘Changing geography of ill health’ on the 25 November 2020, England’s Chief Medical Officer, Professor Chris Whitty made the point that population health varies over time in a particular area, so identifying these variations is essential to understanding disease and to tackling it (Whitty 2020). Using geospatial analyses and mapping to understand these relationships between health and place over time or at a point in time is important, particularly when one domain of health inequalities is addressing geographical variations (Campbell *et al.* 2021, Public Health England 2021, Office for Health Improvement and Disparities 2022). This paper provides a commentary exploring the health geography observations of analyses using published results of a health census of local plans in England (Chang *et al.* 2024).

Planning for health does not happen by default. Ensuring regulatory mechanisms such as the local plan is explicit about helping to address health outcomes is an important part an effective upstream and systems approach to health improvement in towns and cities (The Lancet 2012, Black *et al.* 2019, Chang *et al.* 2022). The local plan is a critical component of the spatial planning process in relation to improving health and wellbeing. It can be considered a legal

determinant of health that can help actions by planning authorities and public health professionals to tackle the social determinants of health (Commission on Creating Healthy Cities 2022, Montel 2023). While each country will have varying procedural and regulatory frameworks for spatial planning, most planning systems will have a public policy document(s) that set out rules and guidelines to form the basis of local decision-making on land use developments (OECD 2017). This applies to England where each local authority is required to have a local plan that sets out the authority’s policies relating to the development and use of land in their area. These policies are informed by requirements specified by the government in the National Planning Policy Framework (NPPF).

The starting point for this paper is consistent with the health geography approach by mapping to identify where patterns may become evidence, and arguably easier to understand, than if findings are presented in tabulated numerical-only formats (Moon 2020). A well-cited historical example is John Snow’s mapping in Victorian London to attribute the cause of the cholera epidemic among individuals to a contaminated water source (Shiode *et al.* 2015). A more recent example in the mapping of density of hot food

**CONTACT** Michael Chang  [michael.chang@bristol.ac.uk](mailto:michael.chang@bristol.ac.uk)  School of Civil, Aerospace and Design Engineering, University of Bristol, 1.2 Tower View, Queen’s Building, University Walk, Bristol BS8 1TR, UK

© 2024 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

takeaways (HFTAs) across local authority areas in England found instances of policy clustering among local authorities and a link between density and deprivation (Public Health England 2018). There is literature discussing the pros and cons of determining the appropriate scales at which to understand the health and place relationship (Osypuk and Galea 2007, O'Brien 2015) and this paper takes the position of focusing on the scale of the local authority unit.

Understanding how current local plans are structured and what health-focused policies they contain can provide insight on how they can be improved upon. This proposition supports consistent research findings over the last 10 years about the importance of spatial policy for health and integration of planning policies with health priorities (Carmichael et al. 2013, 2019). We conducted a health census of local plans which aimed to address the hypothesis that integrating health in spatial planning policies is a prerequisite to achieving healthy places. This census continues to be a novel and only one conducted in England on health in all local plans. This health census, based on a framework of 26 parameters, presented a series of results that provide the baseline for the current state of local planning for health across England (Chang et al. 2024). It updated a previous census carried out 5 years ago and published in 2019 (Chang 2019) though those results were not mapped or further analysis undertaken.

The parameters sought to reflect a comprehensive range and diversity of policy opportunities within a statutory planning document to consider health and wellbeing, and therefore understand the state of health in local plans. These included whether local plans reflected government expectations in the NPPF that require planning policies to consider local health and wellbeing needs and support the delivery of health strategies, whether they were subject to a health impact assessment (HIA), whether they included a HIA policy, and whether they had health embedded across the wider determinants of health such as housing, active transport, food environment and natural and sustainable environment.

The protocol for the health census had two specific objectives (Chang and Carhart 2023). Firstly, to determine number of local plans with health policies that are policy compliant and address the wider determinants of health. This objective was achieved and results published in the *Journal of Planning Literature* (Chang et al. 2024) with analysis against comparable local plans research such as (Callway et al. 2023) and (Keeble et al. 2019). To provide further interpretation of the above results, there was a need to undertake further research by conducting analysis on the above census findings and make this available in presentable formats. So, the objective of this paper is to take the census findings on the health geography journey to, first, visualise then conduct an exploratory observation and possible explanations of any relationships between the existence of health policies and local authority characteristics. Results from the second objective provide national policy makers with a strategic picture of variations in local planning for health. Building this picture can then enable a better understanding of which regions or local authorities, which with limited to no health in local policies, require focused engagement to help integrate health into their local policies based on local health needs and priorities.

## Methods

### Methods and process

This cross-sectional and geospatial study used the health census results and the process for undertaking the activities underpinning this paper is set out as follows (Figure 1). In brief the original results for the health census were prepared to facilitate the mapping process. To facilitate mapping, results from the health census for each eligible English local authority (LA) were formatted such as attributing numerical values to each of the 26 census parameters responses per LA. The formatting also included the need to synchronise some local authorities with their respective geographic data given local government boundary reorganisation and unitarisation of two-tier areas over the years. This

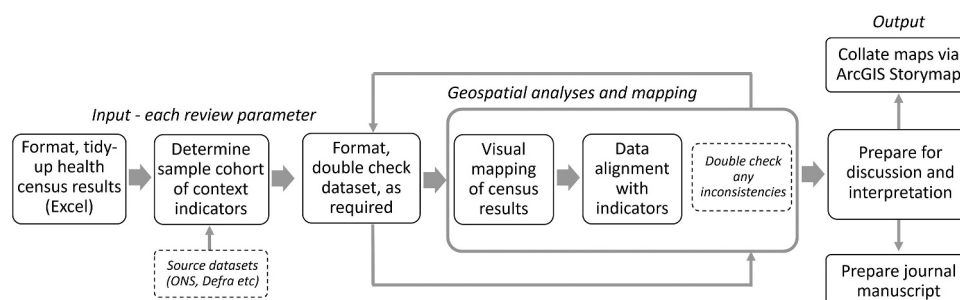


Figure 1. Local plans health census mapping process.



**Figure 2.** Screenshot of the ArcGIS StoryMap where maps can be accessed.

included for instance Buckingham County Council and its district councils coming together to form a single authority in 2020, but the individual district councils' local plans remain valid until replaced. The formatted Excel tables facilitated mapping produced on ArcGIS and collated in an ArcGIS StoryMap (Figure 2).

### Context indicator selection

To explore the relationship between place and local government areas, we selected an initial cohort of context indicators, as follows.

#### Local authority rural–urban classification

To determine the type and predominant geographical setting of local authorities, we adopted the Department for Environment, Food and Rural Affairs (Defra) 2011 Rural–Urban Classification for Local Authority Districts in England which is based on the percentage of resident population in rural or urban settings (Office for National Statistics 2024). An area was classified as rural if more than 50% of the resident population lives in rural areas or rural

settlements of around 10,000 and 30,000. Urban areas with significant rural is classified where only 26–49% of residents are living in rural areas. An area was classified as predominantly urban if more than 75% of the resident population lives in urban areas.

#### Local authority political majority

The LA population is represented by elected representatives or councillors who may belong to one of the national political parties (Conservatives, Labour or Liberal Democrat), or a local political party or independent (Independent). Having a political majority provides insight into ideological preferences for policies but there is also the possibility a LA has no majority political party (No Overall Control). We used the most recent local elections results in the year of or preceding the local plans reviewed in the health census. For example, for a London borough's local plan adopted in 2023, we took the results of the 2022 local elections.

#### Index of multiple deprivation

There is extensive literature to establish deprivation as an important determinant of people's health and as well as relationships with the built and natural environment (Bird *et al.* 2018, Environment Agency 2023). We adopted the Index of Multiple Deprivation at LA area scale. The Index combines seven deprivation domains (Income, Employment, Education, Skills and Training, Health Deprivation and Disability, Crime, Barriers to Housing and Services, and the Living Environment), and is the official measure of relative deprivation in England. We used the rank average within LA areas, that shows the position of a LA relative to all other areas. Within this measure Quartile 1 (Q1) was defined as having the highest proportion of the most deprived neighbourhoods by rank and Q4 was defined as having the lowest proportion of deprived neighbourhoods by rank.

### Discussion on the state of planning for health policy and place

#### Setting the results in geography and context of local authority indicators

Table 1 provides an overview of the descriptive statistics of the three selected indicators. The majority (55.1%) of local authorities were classified as predominantly urban governing the 82.4% of the population living in urban areas compared to 17.6% of the population in rural settings. At the point of respective local plan adoption between 2012 and 2023, the majority of LAs in the study were in Conservative majority (44.6%), followed by a Labour majority (29.5%) and in No Overall

**Table 1.** Overview of descriptive statistics of type of LA in health census sample.

Local authority context indicator	Percentage (number) of local authorities
<b>Rural/urban</b>	
Predominantly urban	55.1% ( <i>n</i> = 157)
Urban with significant rural	16.5% ( <i>n</i> = 47)
Predominantly rural	28.4% ( <i>n</i> = 81)
<b>Political majority</b>	
Conservatives	44.6% ( <i>n</i> = 127)
Labour	29.5% ( <i>n</i> = 84)
Liberal Democrats	7.4% ( <i>n</i> = 21)
No overall control	17.5% ( <i>n</i> = 50)
Independent & others	1.1% ( <i>n</i> = 3)
<b>Deprivation (average rank)</b>	
Q1 (<80) most deprived	24.9% ( <i>n</i> = 71)
Q2 (81–163.50)	24.9% ( <i>n</i> = 71)
Q3 (163.51–240.00)	25.3% ( <i>n</i> = 72)
Q4 (>240) least deprived	24.9% ( <i>n</i> = 72)

Control (17.5%). On area-level deprivation, the local authorities were evenly spread across the deprivation rank. The ONS found area-level deprivation continues to be dispersed across England with LAs in the north of England such as Liverpool, Manchester and Hull with the highest proportions of deprived neighbourhoods. As a Supplementary file, we have provided tabulated results for review parameters with local authority context indicators.

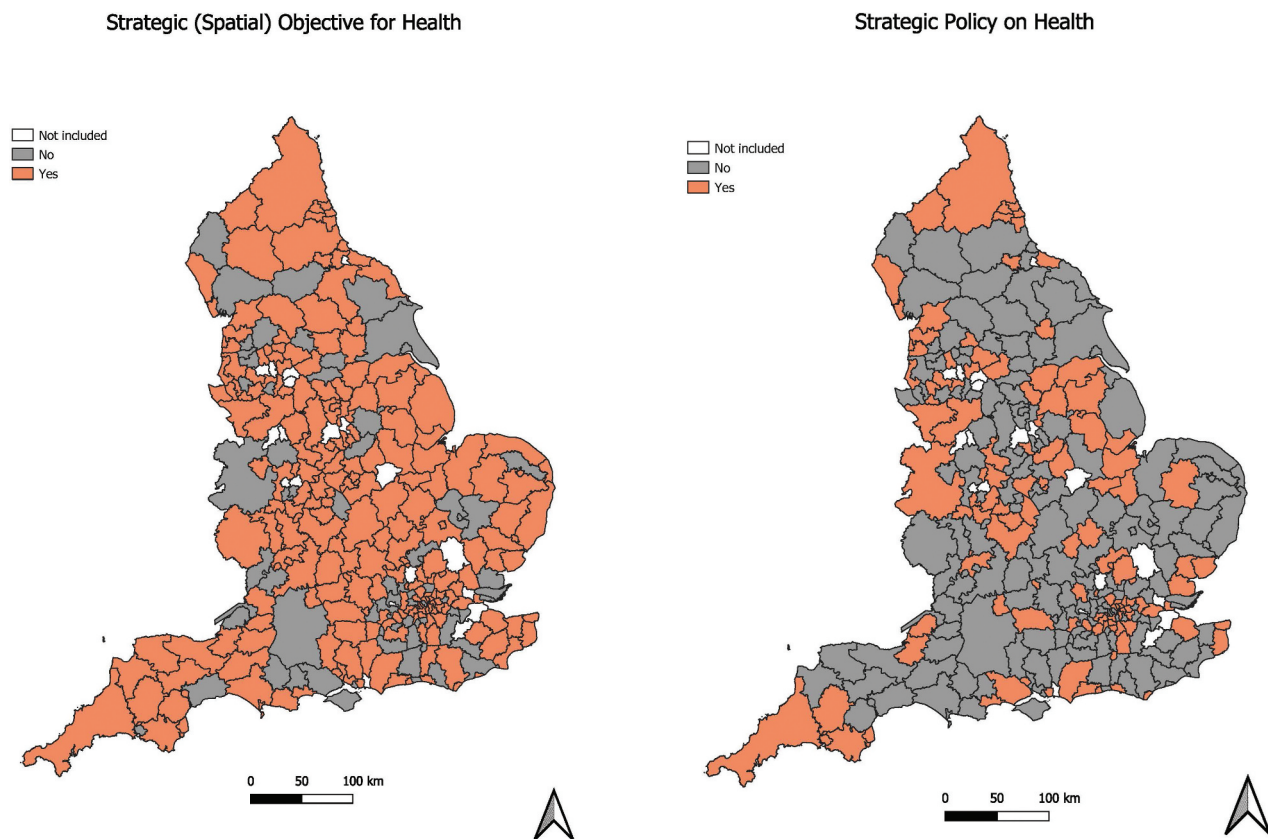
A series of maps for these parameters can be accessed at <https://storymaps.arcgis.com/stories/f70727670e5f4c8682566eeec63a2fd6>, where readers can explore each indicator interactively which will help facilitate policy action for those interested in specific areas.

### **Policy links between planning and public health systems**

According to the 2019 State of The Union of planning for health report, building an understanding of the planning and public health systems and their alignment opportunity has been a steep learning curve for most policy makers and practitioners (Chang 2019). 2012 was a key milestone when the first NPPF was first created. The 2012 version introduced two expectations for planning to take account of health needs, and local strategies to improve health and wellbeing (Department for Communities and Local Government 2012). According to the Department of Health representative at a project workshop leading up to the Town and Country Planning Association report on Reuniting Health with Planning (Ross and Chang 2012), they indicated such expectations were indirect references to the local authority public health system's statutory joint strategic needs assessment or JSNA (health needs) and the joint health and wellbeing strategy or JHWS (health and wellbeing strategy).

The health census result found only 29.2% of local plans referring to the JHWS, which was a slight improvement on the previous study by the TCPA published in 2019. With mapping providing a different and spatial perspective, we can visualise local authorities with plan links to the local health strategy concentrating across the East Midlands, Yorkshire and Humber, East of England and London regions and mostly absent in other regions. At the same time most of the LAs have a local plan objective on health (Figure 3 left map) while a significantly smaller number of LAs have a policy on health (right map). The mapping indicated a mismatch between the planning system's priorities for health versus the published actual health priorities of the LA. This is consistent with research which found the vision for healthy placemaking is clear but this vision does not always translate into tangible actions (Design Council & Social Change UK 2018). When joining area-level deprivation data, we found more LAs in the least deprived areas not having a health policy. In contrast while there were more LAs in the most deprived that did have a health objective and policy in the local plan.

A HIA is a systematic approach to identifying and managing the potential health and wellbeing impacts of policies and provides an evidence-informed set of recommendations to enhance positive effects on health, reduce or eliminate negative effects, and reduce health and social inequalities (Sharpe *et al.* 2022). The health census found many LAs (19.4%) have conducted an HIA on the local plan, which is consistent with evidence gathered from a previous HIA review of local plan appraisal practices (Fischer *et al.* 2021). When examined against LA contextual indicators, we found that there was some evidence to suggest that LAs were more likely to have undertaken a HIA of their local plans if they were in 'urban with significant rural' areas and with majority Labour control or No Overall Control. However, it is a somewhat less clear picture when analysed against area-level deprivation. The data tentatively suggested that the more deprived LAs have undertaken an HIA



**Figure 3.** Maps showing coverage of LAs with link to local health strategies (left) and extensive nation-wide coverage of local plans with a health policy (right).

which may suggest those LAs leveraging the purpose and benefits of HIAs to identify health, wellbeing and wider inequalities concerns.

### **Mapping and context variations across the social determinants**

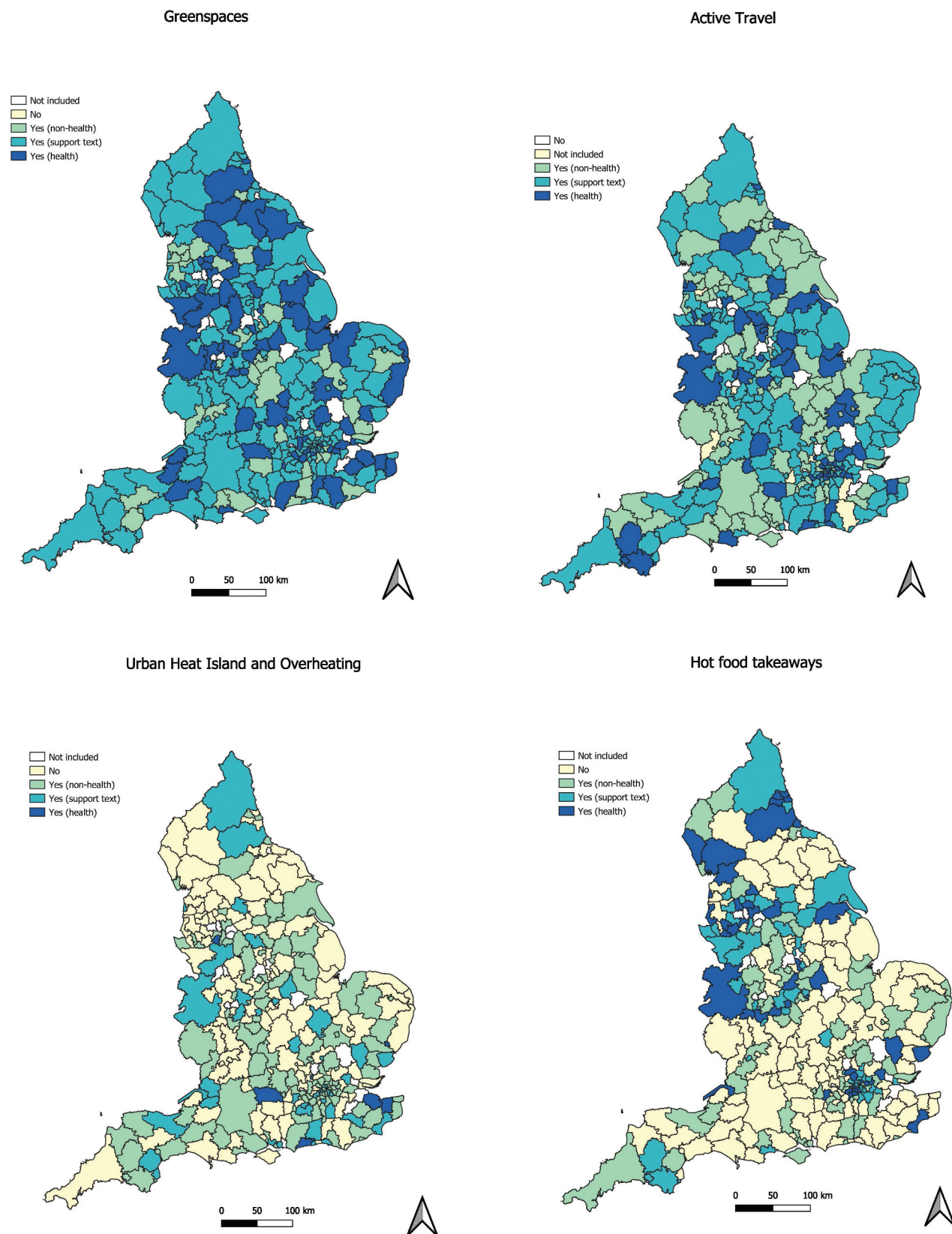
There are also observations from the findings against the visual mapping and local area context indicators, namely greenspaces, active travel, urban heat island and overheating, and HFTAs (Figure 4).

On the greenspaces parameter, there is established understanding of areas of improvement in local policy and practice (Public Health England 2020). From the results, there was almost complete policy coverage across England with more LAs having health in the policy and supporting text. The pattern across the rural–urban classifications and deprivation was mixed and balanced across the categories. However generally more LAs in predominant urban areas had a health policy suggesting an established recognition of links between greenspaces and health.

With the active travel parameter, active travel policies were more likely to include health in predominant urban areas. This supports a common challenge in active travel policy and communications

focused on urban areas than rural which have its own unique set of practical and geographical challenges (Hutchinson *et al.* 2014, Viney 2022). Rural and more isolated communities have some of the worst health outcomes with low life expectancy and high rates of many diseases, which can be compounded by challenges in relation to poorer access to transport (Whitty 2021).

On the urban heat island and overheating parameter, it was observed in the initial analysis of health census results that more LAs in the major metropolitan areas such as Manchester and London have such a policy than LAs in rural geographies (Chang *et al.* 2024). This aligns with our general understanding that the experience of overheating would more acute and prominent in urban settings such as London as well as key contextual indicators such as building design and site orientation (Hajat *et al.* 2007, Feng *et al.* 2023). From the visual mapping results with the rural–urban classification for LAs, this initial observation was less pronounced across England and can be partly explained by the majority of LAs not having a policy which reduces the effectiveness of visual mapping analysis. To improve on this policy coverage, future actions must ensure such policies are based on a combination of geographies, behavioural



**Figure 4.** Maps showing local plans for health coverage across the active travel, green spaces, urban heat island and overheating and hot food takeaways parameters.

and health data to both minimise contribution from poor planning and design and build resilience of vulnerable groups such as the elderly and those with underlying health conditions.

On the food environment parameter on HFTA policy, rural LAs were more likely to have no policy while those in predominantly urban areas did have a health specific HFTA policy. More LAs

in more deprived had a policy which corroborated with the weight of evidence between location of fast-food outlets and deprivation (Hobbs *et al.* 2019, Keeble *et al.* 2019). Evidence also suggested that more LAs with Conservatives majority did not have a policy while conversely more LAs with Labour majority did have a health-specific HFTA policy. This also corroborates current research finding greater odds of local authorities with a HFTA policy explicitly addressing health under Labour majority control (Keeble *et al.* 2019).

### Conclusions and implications for research, policy and practice

The health census of local plans in England provided a comprehensive snapshot of the state of local planning for health at a point in time in 2023, across different health-related factors. The methodology of the local plans for health census and analysis underpinning this paper can be adapted to align with different international planning system requirements.

The results in this study generally show inconsistent pattern of integrating health into local plans based on actual health and deprivation characteristics of local authority areas. This finding supports strengthening calls for health and wellbeing to feature more at the centre of planning (Bates *et al.* 2023, Callway *et al.* 2023, Nieuwenhuijsen *et al.* 2023). However, some indicators have clearer relationships than others when analysed across the rural–urban geographies, political majority and area-level deprivation indicators, which suggest the beginnings of more health-oriented local planning by some LAs in England. In particular the results found the presence of health in certain policies such as active travel and greenspaces vary between LAs in urban and rural geographies which suggest there is no one-size-fits-all and that local planning for health needs to be sensitive to context (Leggett 2019).

There is a need to build on this commentary and exploratory data analyses by generating interest from the academic community as well as national and local policy makers. We believe further in-depth analyses, interpretation and supplemented with local engagements will yield additional insight and foresight to better inform the future of local planning for health. This includes utilising a broader range of public health outcome indicators such as obesity, healthy life expectancy, rates of physical activity and self-reported wellbeing. Analysis can develop a better understanding of

factors that can positively influence local planning for health in different settings such as urban, rural and coastal communities. Further analysis can harness advances in digital and artificial intelligence platforms to conduct enhanced analysis at finer geographies aligned with community-centred approach to public health (Stansfield *et al.* 2020, Batty and Yang 2023). A better spatial understanding can also enable better targeted application of healthy planning frameworks in development projects in geographies of greater health need and challenges (De La Haye *et al.* 2024). Such further exploration also needs to be consistent with system approaches to recognise complexity and that factors influencing health in local plans is dependent on multiple factors including the agency of those involved in the planning process (Burnett and Pain 2023, Le Gouais *et al.* 2023).

The current results are important not just in terms of having a baseline understanding but also to point to areas of strategic action for policy makers at both national and local levels. It can mean the need to re-orient planning activities to support the particular health needs of certain geographies of place such as in rural settings, coastal communities or in areas of high housing demand such as urban brownfield locations (Whitty 2021, Defra 2024). It can also mean the need to better understand, as wider literature have highlighted, if and whether there are underlying local authority resourcing and capability constraints that have not allowed for a greater integration of health into local planning policies (Strategic Solutions 2010, Chang *et al.* 2022, Coombes *et al.* 2024).

Planning is widely associated with the political discourse (Marshall 2021). It can mean recognising the political dimension of planning and help navigate challenging discussions and decisions with local elected politicians based on evidence-informed objective local planning for health (Hickman and Boddy 2020, Oxendine 2020). This can suggest adapting communications and engagement strategies to certain political ideologies can be more effective in getting policy buy-in from local politicians as key decision makers.

This paper sets the potential for significant amount of further research and analysis to facilitate interpretation of the local plans health census to consider wider systemic factors. This comes at a time of expected major policy change in England from a new Government. There is a timely opportunity to make the most effective use of the plan-led local planning system to create healthier communities.

## Author contributions

MC: study conceptualisation, methodology, original and new data curation, interpretation of results, original manuscript preparation, revision and final approval. MH: study conceptualisation, new data curation, software, data mapping, tables and map visualisation, interpretation of results, manuscript review, and final approval.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Funding


This work was supported by the UK Prevention Research Partnership (award reference: MR/S037586/1), which is funded by the British Heart Foundation, Cancer Research UK, Chief Scientist Office of the Scottish Government Health and Social Care Directorates, Engineering and Physical Sciences Research Council, Economic and Social Research Council, Health and Social Care Research and Development Division (Welsh Government), Medical Research Council, National Institute for Health Research, Natural Environment Research Council, Public Health Agency (Northern Ireland), The Health Foundation and Wellcome.

## Notes on contributors

**Michael Chang** is a PhD candidate at the University of Bristol. He leads the Spatial Planning and Health Programme at the Office for Health Improvement and Disparities in the Department of Health and Social Care. He is a Chartered Fellow town planner of the Royal Town Planning Institute, Honorary Member of the Faculty of Public Health and Honorary Senior Research Fellow at University College London's Institute for Global Health. His research interests relate to using the spatial planning system and powers to address public health outcomes including food environment and obesity.

**Dr Matthew Hobbs** is a Senior Lecturer (Above the Bar) in Public Health, Faculty of Health and Co-Director of GeoHealth Laboratory, Geospatial Research Institute at the University of Canterbury in New Zealand. His research focuses on the relationship between the places and environments where we spend our time and human behaviour and health.

## ORCID

Michael Chang  <http://orcid.org/0000-0002-2756-272X>  
Matt Hobbs  <http://orcid.org/0000-0001-8398-7485>

## References

- Bates, G., *et al.*, 2023. Urban policies and the creation of healthy urban environments: a review of government housing and transport policy documents in the United Kingdom. *Journal of urban affairs*, 1–19. doi:10.1080/07352166.2023.2260029.
- Batty, M. and Yang, W., 2023. *A digital future for planning spatial planning reimagined*. London: Digital Task Force for Planning.
- Bird, E.L., *et al.*, 2018. Built and natural environment planning principles for promoting health: an umbrella review. *BMC public health*, 18 (1), 930. doi:10.1186/s12889-018-5870-2.
- Black, D., *et al.*, 2019. Moving health upstream in urban development: reflections on the operationalization of a transdisciplinary case study. *Global challenges*, 3 (4), 1700103. doi:10.1002/gch2.201700103.
- Burnett, A. and Pain, K., 2023. Linking environmental and human health in English urban development decision-making: the human health literacy of environmental policy. *Built environment*, 49, 187–206.
- Callway, R., *et al.*, 2023. Integrating health into local plans: a comparative review of health requirements for urban development in seven local planning authorities in England. *International journal of environmental research and public health*, 20 (5), 4079. doi:10.3390/ijerph20054079.
- Campbell, M., Marek, L., and Hobbs, M., 2021. Reconsidering movement and exposure: towards a more dynamic health geography. *Geography compass*, 15 (6), e12566. doi:10.1111/gec3.12566.
- Carmichael, L., *et al.*, 2013. Health-integrated planning at the local level in England: impediments and opportunities. *Land use policy*, 31, 259–266. doi:10.1016/j.landusepol.2012.07.008.
- Carmichael, L., *et al.*, 2019. Urban planning as an enabler of urban health: challenges and good practice in England following the 2012 planning and public health reforms. *Land use policy*, 84, 154–162. doi:10.1016/j.landusepol.2019.02.043.
- Chang, M., 2019. *The state of the union: reuniting health with planning in promoting healthy communities*. London: Town and Country Planning Association.
- Chang, M., *et al.*, 2022. Building the future generations of the public health spatial planning workforce: translating healthy places policies into reality. In: A. Peric, A. Alraouf, and J. Cilliers, eds. *Towards healthy cities: urban governance, planning and design for human well-being*. The Hague: ISOCARP (International Society of City and Regional Planners), 45–56.
- Chang, M. and Carhart, N., 2023. Review of spatial planning policy as an intervention for improving public health: protocol for a health-focused content review of local plans in England. *medRxiv*. doi:10.1177/08854122241229565.
- Chang, M., Carhart, N., and Callway, R., 2024. Spatial plans as a critical intervention in improving population health. A discourse arising from a health census review of the state of current local planning policy in England. *Journal of planning literature*, 08854122241229565. doi:10.1177/08854122241229565.
- Chang, M., Green, L., and Petrokofsky, C., 2022. *Public health spatial planning in practice. improving health and wellbeing*. Bristol: Policy Press.
- Commission on Creating Healthy Cities, 2022. *What creates healthy cities?* Oxford: Global Centre on Healthcare and Urbanisation, Kellogg College.
- Coombes, E., *et al.*, 2024. *Building and facilitating system capability to create healthy environments. A qualitative process evaluation*. National Institute of Health and Care Research (NIHR). <https://phirst.nihr.ac.uk/>.

- Defra, 2024. Policy paper: delivering rural opportunity: third report on rural proofing. London: Department for Environment Food & Rural Affairs.
- De La Haye, A., et al., 2024. A thematic analysis of UK healthy planning frameworks and tools designed to support the inclusion of health in urban planning. *Cities & health*, 1–17. doi:10.1080/23748834.2024.2353963.
- Department for Communities and Local Government, 2012. *National planning policy framework*. London: Department for Communities and Local Government.
- Design Council & Social Change UK, 2018. *Healthy place-making: why do built environment practitioners create places that contribute to preventable disease and early death, despite evidence on healthy placemaking?*. London: Design Council and Social Change UK.
- Environment Agency, 2023. *State of the environment: health, people and the environment* [Online]. London: Environment Agency. Available from: <https://www.gov.uk/government/publications/state-of-the-environment/state-of-the-environment-health-people-and-the-environment> [Accessed 27 May 2024].
- Feng, J., et al., 2023. Overheating of cities: magnitude, characteristics, impact, mitigation and adaptation, and future challenges. *Annual review of environment and resources*, 48 (1), 651–679. doi:10.1146/annurev-environ-112321-093021.
- Fischer, T.B., et al., 2021. Health impact assessment in spatial planning in England –types of application and quality of documentation. *Environmental impact assessment review*, 90, 106631. doi:10.1016/j.eiar.2021.106631.
- Hajat, S., Kovats, R.S., and Lachowycz, K., 2007. Heat-related and cold-related deaths in England and Wales: who is at risk? *Occupational and environmental medicine*, 64 (2), 93–100. doi:10.1136/oem.2006.029017.
- Hickman, H. and Boddy, M., 2020. 'If independence goes, the planning system goes': new political governance and the English planning inspectorate. *The town planning review*, 91 (1), 21–45. doi:10.3828/tpr.2020.2.
- Hobbs, M., et al., 2019. Reconsidering the relationship between fast-food outlets, area-level deprivation, diet quality and body mass index: an exploratory structural equation modelling approach. *Journal of epidemiology & community health*, 73 (9), 861–866. doi:10.1136/jech-2018-211798.
- Hutchinson, J., White, P.C., and Graham, H., 2014. Differences in the social patterning of active travel between urban and rural populations: findings from a large UK household survey. *International journal of public health*, 59 (6), 993–998. doi:10.1007/s00038-014-0578-2.
- Keeble, M., et al., 2019. Correlates of English local government use of the planning system to regulate hot food takeaway outlets: a cross-sectional analysis. *The international journal of behavioral nutrition and physical activity*, 16 (1), 127. doi:10.1186/s12966-019-0884-4.
- Keeble, M., et al., 2019. How does local government use the planning system to regulate hot food takeaway outlets? A census of current practice in England using document review. *Health & place*, 57, 171–178. doi:10.1016/j.healthplace.2019.03.010.
- The Lancet, 2012. Shaping cities for health: a UCL/Lancet commission. *Lancet*, 379 (9831), 2023. doi:10.1016/S0140-6736(12)60870-8.
- Leggett, J., 2019. *Health and care in rural areas*. Oxfordshire: Action with Communities in Rural England (ACRE).
- Le Gouais, A., et al., 2023. Understanding how to create healthier places: a qualitative study exploring the complex system of urban development decision-making. *Health & place*, 81, 103023. doi:10.1016/j.healthplace.2023.103023.
- Marshall, T., 2021. *The politics and ideology of planning*. Bristol: Policy Press.
- Montel, L., 2023. 'Harnessing the power of the law': a qualitative analysis of the legal determinants of health in English urban planning and recommendations for fairer and healthier decision-making. *BMC public health*, 23 (1), 310. doi:10.1186/s12889-023-15166-0.
- Moon, G., 2020. Health geography. In: A. Kobayashi, ed. *International encyclopedia of human geography*. 2nd ed. Oxford: Elsevier, 315–321.
- Nieuwenhuijsen, M., et al., 2023. Shaping urban environments to improve respiratory health: recommendations for research, planning, and policy. *The Lancet respiratory medicine*, 12 (3), 47–254.
- O'Brien, J., 2015. Geography of health. In: J.D. Wright, ed. *International encyclopedia of the social & behavioral sciences*. 2nd ed. Oxford: Elsevier, 628–632.
- OECD, 2017. *Land-use planning systems in the OECD. Country fact sheets*. Paris: OECD Publishing.
- Office for Health Improvement and Disparities, 2022. *Health disparities and health inequalities: applying all our health* [Online]. Available from: <https://www.gov.uk/government/publications/health-disparities-and-health-inequalities-applying-all-our-health/health-disparities-and-health-inequalities-applying-all-our-health> [Accessed 24 May 2024].
- Office for National Statistics, 2024. Rural urban classification (2011) of local authority districts in England. In: *ONS geography*. Office for National Statistics. <https://geoportal.statistics.gov.uk/datasets/f9fdc3adbc234f8eace7c2b62274632/about>.
- Osypuk, T.L. and Galea, S., 2007. What level macro? Choosing appropriate levels to assess how place influences population health. In: S. Galea, ed. *Macrosocial determinants of population health*. New York, NY: Springer New York, 399–435.
- Oxendine, A.R., 2020. Inequality, innovation and the future of cities: navigating political challenges of rising distrust and anxiety. *Cities & health*, 4 (2), 193–198. doi:10.1080/23748834.2019.1707931.
- Public Health England, 2018. *Fast food outlets: density by local authority in England*. London: Public Health England.
- Public Health England, 2020. *Improving access to greenspace. A new review for 2020*. London: Public Health England.
- Public Health England, 2021. *Place-based approaches for reducing health inequalities: main report*. Public Health England.
- Ross, A. and Chang, M., 2012. *Reuniting health with planning – healthier homes, healthier communities*. London: Town and Country Planning Association.
- Sharpe, C.A., et al., 2022. Health impact assessment in spatial planning in England. *Cities & health*, 6 (5), 864–867. doi:10.1080/23748834.2021.1876377.
- Shiode, N., et al., 2015. The mortality rates and the space-time patterns of John Snow's cholera epidemic map. *International journal of health geographics*, 14 (1), 21. doi:10.1186/s12942-015-0011-y.
- Stansfield, J., South, J., and Mapplethorpe, T., 2020. What are the elements of a whole system approach to community-centred public health? A qualitative study with public health leaders in England's local authority areas. *BMJ open*, 10 (8), e036044. doi:10.1136/bmjopen-2019-036044.

- Strategic Solutions, 2010. *Study of local spatial planning process and health*. London: National Institute for Health and Care Excellence.
- Viney, Z., 2022. Are rural communities being left behind with active travel? Available from: <https://www.cyclinguk.org/blog/are-rural-communities-being-left-behind-active-travel> [Accessed 31 May 2024].
- Whitty, C., 2020. *The changing geography of Ill health* [Online]. Gresham College. Available from: <https://www.gresham.ac.uk/watch-now/health-geography> [Accessed 17 May 2024].
- Whitty, C., 2021. Chief medical officer's annual report 2021. Health in coastal communities. London: Department of Health and Social Care.