



Public Health
England

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Spatial Planning for Health: Green Infrastructure

Carl Petrokofsky, FFPH
Specialist in Public Health
Healthy Places team
Public Health England

In 2007, a new edition of the Oxford Junior Dictionary was published aimed at seven-to-nine-year-olds. OUP deleted a series of words as they were no longer considered relevant to modern day childhood, including:

Acorn, adder, ash, beech, bluebell, buttercup, conker, cowslip, crocus, cygnet, dandelion, fern, gorse, hazel, heather, heron, horse chestnut, ivy, kingfisher, lark, minnow, newt, otter, pasture, poppy, starling, sycamore, wren, willow -

blackberry was replaced by Blackberry



Contents

- **Public Health England (PHE)**
- **Reflections on Health, Health Inequalities and Place**
- **What we know**
- **Evidence into practice**
- **Concluding Thoughts**

Public Health England

PHE is the expert national public health agency that fulfils the Secretary of State's statutory duty to protect health and address inequalities, and executes his power to promote the health and wellbeing of the nation.

Our functions and the things we deliver to our stakeholders:



We do this through world-class science, advocacy, partnerships, knowledge and intelligence, and the delivery of specialist public health services.



Healthy People Healthy Places

The way we plan, design and manage the territory of places, spaces, facilities and buildings within our everyday community can have an impact on health, from either a positive and negative perspective (RCEP, 2007).



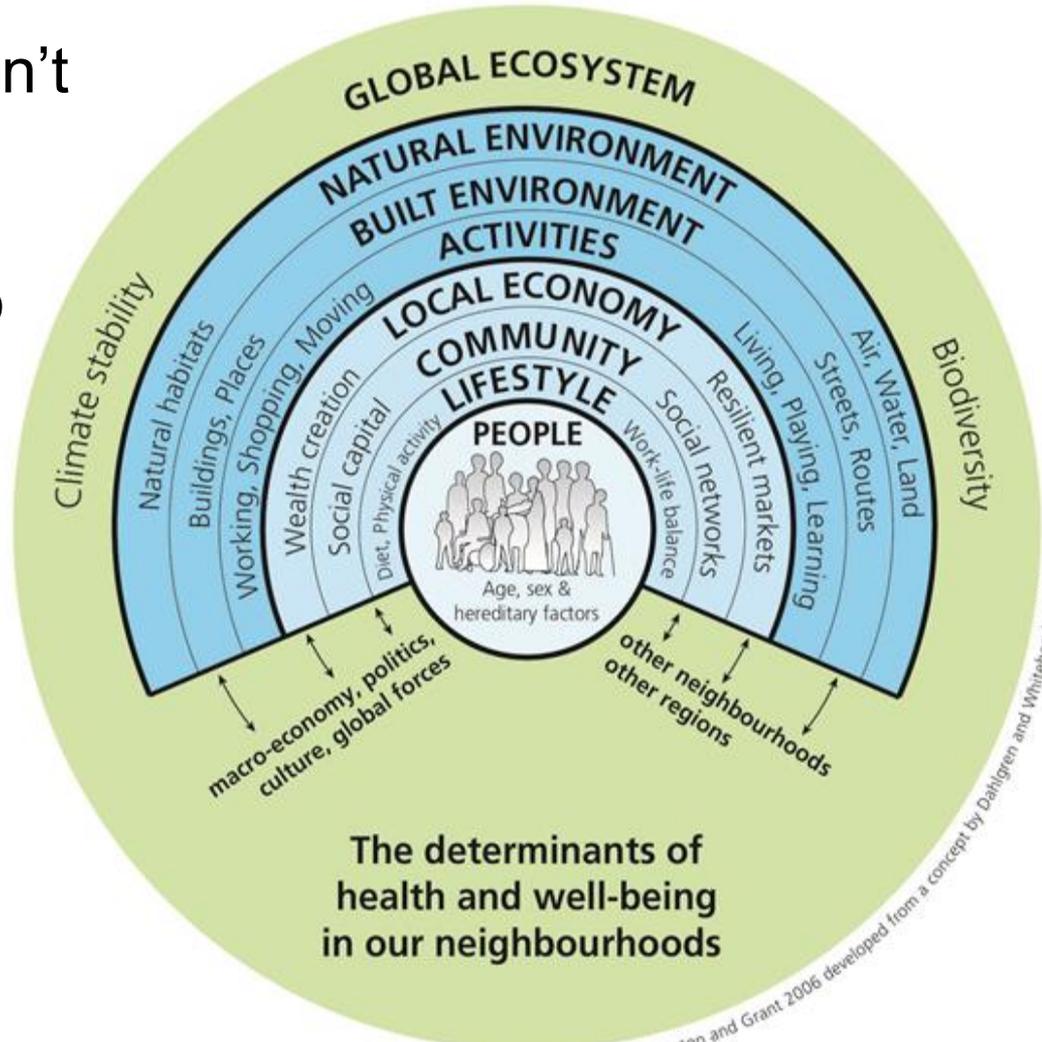
Your health is determined by:

where you don't
live

what you do

who you are

where you live





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In other words....

Why place matters to health and wellbeing

Environments can:



promote physical activity in everyday life (walking, cycling) can help maintain healthy weights

facilitate easy access to healthy, affordable food

promote active travel, fewer injuries, connected neighbourhoods, cleaner air, economic development



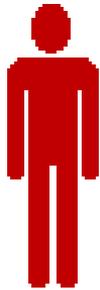
Health Inequalities

Health inequalities are differences between people or groups due to social, geographical, biological or other factors. These differences have a huge impact, because they result in people who are worst off experiencing poorer health and shorter lives.

Some differences, such as ethnicity, may be fixed. Others are caused by social or geographical factors (also known as 'health inequities') and can be avoided or mitigated



Health Inequalities in England



Life expectancy gap:

9.1 years

Healthy life expectancy gap:

18.7 years



Life expectancy gap:

7.2 years

Health life expectancy gap:

19.1 years

Source: Most recent data from PHOF, showing gap between LSOAs in the most and least deprived deciles, 2013-15



Health Inequalities in England (Females)

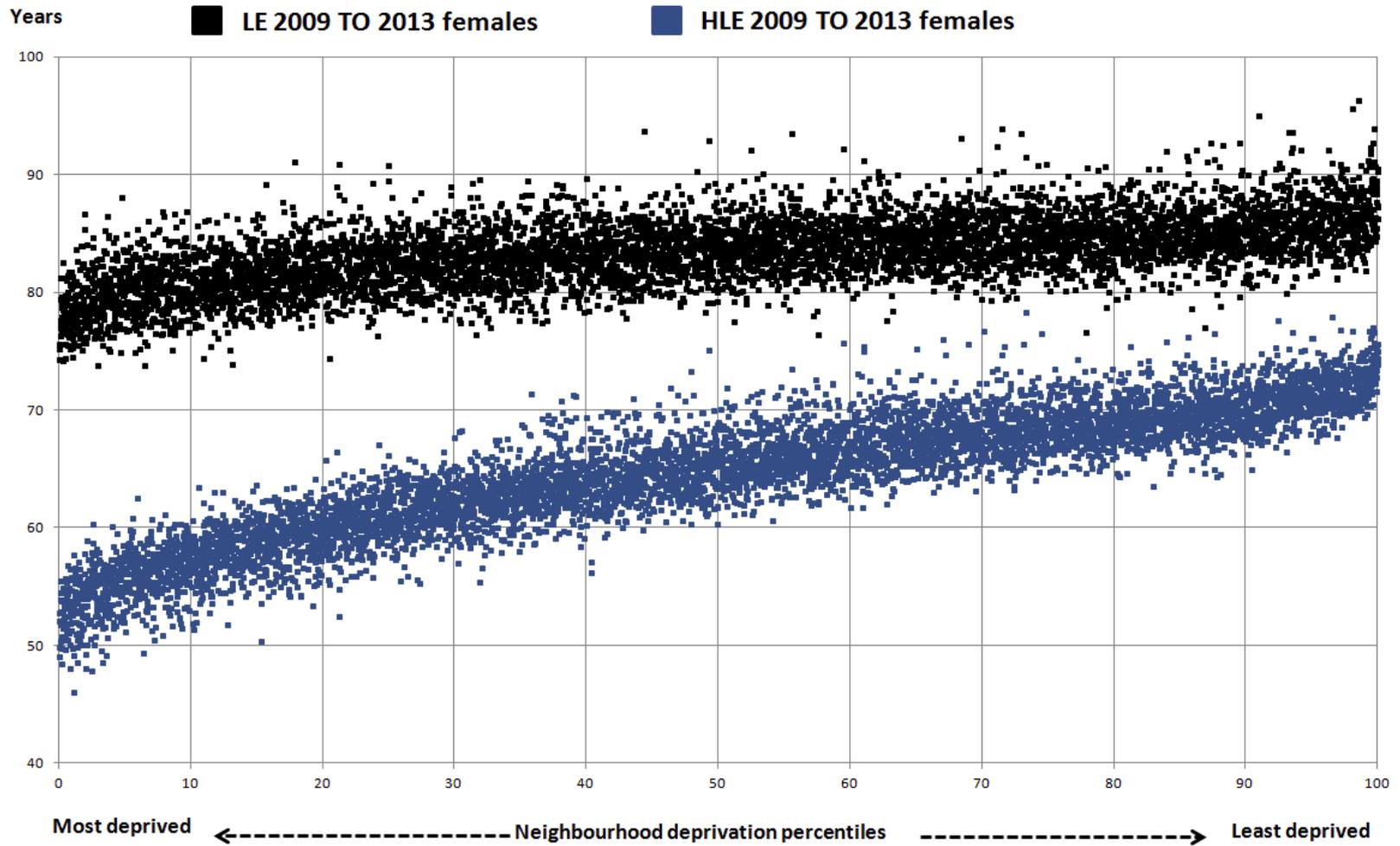
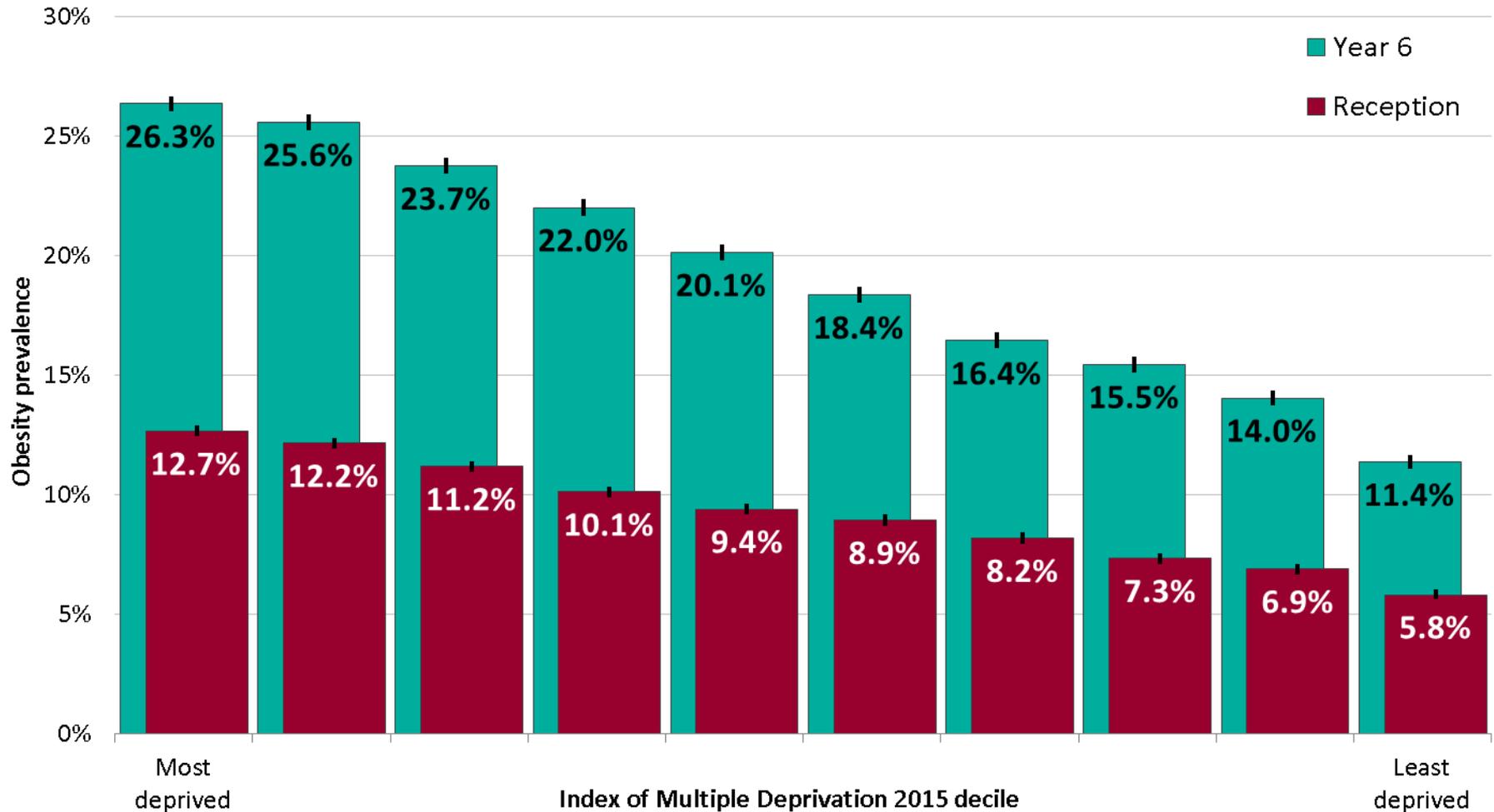


Figure 1: Female life expectancy and healthy life expectancy at birth for neighbourhoods (MSOAs) by the Index of Multiple Deprivation (IMD) 2015: England 2009 to 2013



Obesity prevalence by deprivation decile

National Child Measurement Programme 2016/17



Child obesity: BMI \geq 95th centile of the UK90 growth reference.



Inequalities in the built environment:

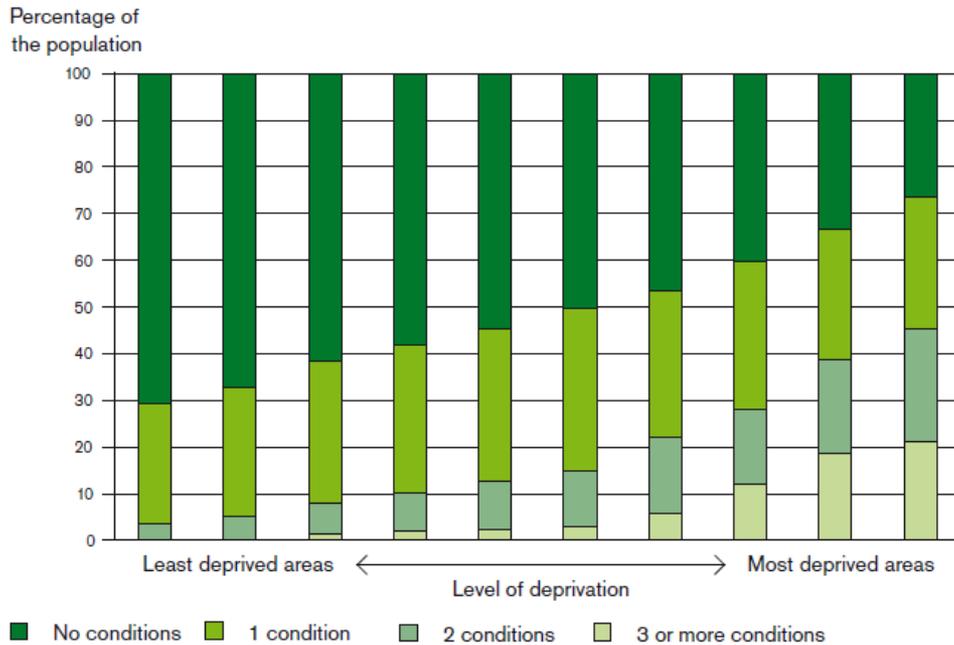
Feature	Most deprived areas	Least deprived areas
Density of fast food outlets	114.1 per 100,000 population	61.4 per 100,000 population
Overcrowded households	7.7%	3.4%
Households in fuel poverty	14.0%	8.1%

Source: Public Health Outcomes Framework, February 2018



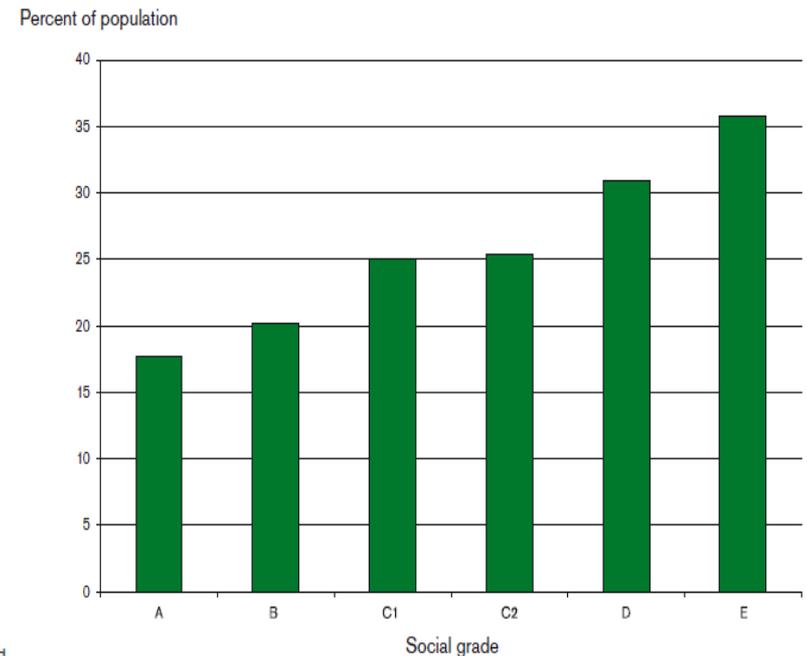
Inequalities in the natural environment

Figure 10 Populations living in areas with, in relative terms, the least favourable environmental conditions, 2001–6



Environmental conditions: river water quality, air quality, green space, habitat favourable to biodiversity, flood risk, litter, detritus, housing conditions, road accidents, regulated sites (e.g. landfill) Source: Department for Environment, Food and Rural Affairs²³

Figure 4.7 Percentage of population by social grade who visit a green space infrequently in a year, 2009



Source: Department for Environment, Food and Rural Affairs, Energy Savings Trust⁴²⁶

Source: The Marmot Review. Fair society, healthy lives. 2010

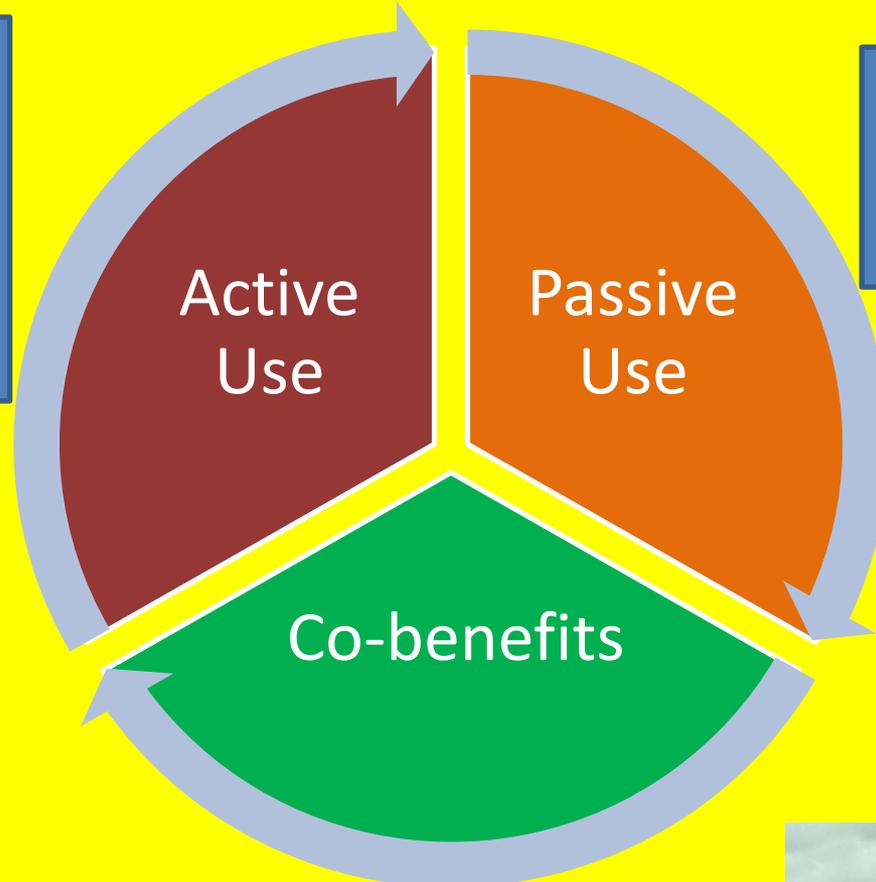


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Why Place Matters: Green (and Blue) Infrastructure and Health

A Framework for the considering Health and Natural Environment

Public parks and Green Space as venues for recreation and connecting with nature
The positive effects of green and blue space on mental health and social support networks



Physical qualities of green and blue space which moderate adverse environmental hazards



The wider economic benefits of public green space (parks) (property values, tourism, cafes and kiosks)





Green Infrastructure

- ***‘a strategically planned network of high quality natural and semi-natural areas with other environmental features, which is designed and managed to deliver a wide range of ecosystems services and protect biodiversity’***
(European Commission)
 - ***‘a network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities’***
(NPPF)
- ‘a multi-functional network... operating at a range of spatial scales’***
(Natural England / TCPA)

Refs: Building a Green Infrastructure for Europe. European Commission. European Union, 2013.
National Planning Policy Framework. Department for Communities and Local Government, Mar. 2012.
Natural England Green Infrastructure Guidance. 2009.
TCPA. Garden City Standards for the 21st Century: Guide 7 planning for green prosperous places.



1. Green Space: What we know

- **Green spaces** associated with decrease in health complaints and improvements in mental health. Green spaces associated with lower levels of health inequalities
- the most affluent 20% of wards in England have 5 times the amount of parks or general green space compared with the most deprived 10% of wards
- people living in the most deprived areas are 10 times less likely to live in the greenest areas
- 66% of all carcinogenic chemicals are released in the 10% most **deprived areas** in the country.



2. Green Space: What we know

- older people live longer in areas where there is more green space close to their homes
- children who live close to green spaces have higher levels of physical activity and are less likely to experience an increase in BMI over time (Children in the 10% most deprived areas are twice as likely to be obese than children living in the 10% least deprived areas)
- Children living in the 10% most deprived wards in the country are 4 times more likely to be **hit by a car** than children living in the 10% least deprived.
- 36,815: deaths per year which could be avoided through increased **physical activity**

3. Green Space: what we know

- Cross-sectional studies show a link between green space and mental health+
- A longitudinal study showed that green space was associated with lower mental distress and greater life satisfaction
- Study from Japan: more “walkable green space” related to lower mortality in the elderly
- Perceptions of good quality facilities and high levels of neighbourliness associated with good self rated health and physical functioning.++

+1Do perceptions of neighbourhood environment influence health? Baseline findings from a British survey of aging.
Ann Bowling et al. J Epidemiol Community Health 2006; 60: 476 – 483

2White et al Would you be happier living in a greener urban area? A fixed-effects analysis of panel data.
Psychological Science 2013; x(X), 1-9

5. Green Space and Health: The Evidence Continues to Build

Living near to green spaces may reduce likelihood of death due to any cause, and especially due to cardiovascular disease.*

Why living near to green spaces might improve health..

1. there may be some intrinsic wellbeing enhancements gained by simply observing natural environments.
2. being in green spaces may reduce exposure to air and noise pollution and extreme temperatures that have a detrimental effect on health — and may also increase access to biodiversity, which can influence immune response.
3. access to green spaces provides opportunities for physical activity and social interaction, which have benefits for physical and mental wellbeing

... the team did not find any studies that explored the link between blue spaces and mortality



Air Pollution: Health Impacts

- The Public Health Outcomes Framework (PHOF) estimates an effect equivalent to roughly 25,000 deaths England attributable to anthropogenic particulate matter air pollution (This does not include Nitrogen Dioxide which is being reviewed)
- It estimated that 5.3 percent of all adult deaths in England are caused by long-term exposure to man-made particulate air pollution (Est range from 2.5% in rural areas – 8.8% in the most polluted London Boroughs¹)

Air pollution is the largest environmental risk associated with deaths each year.



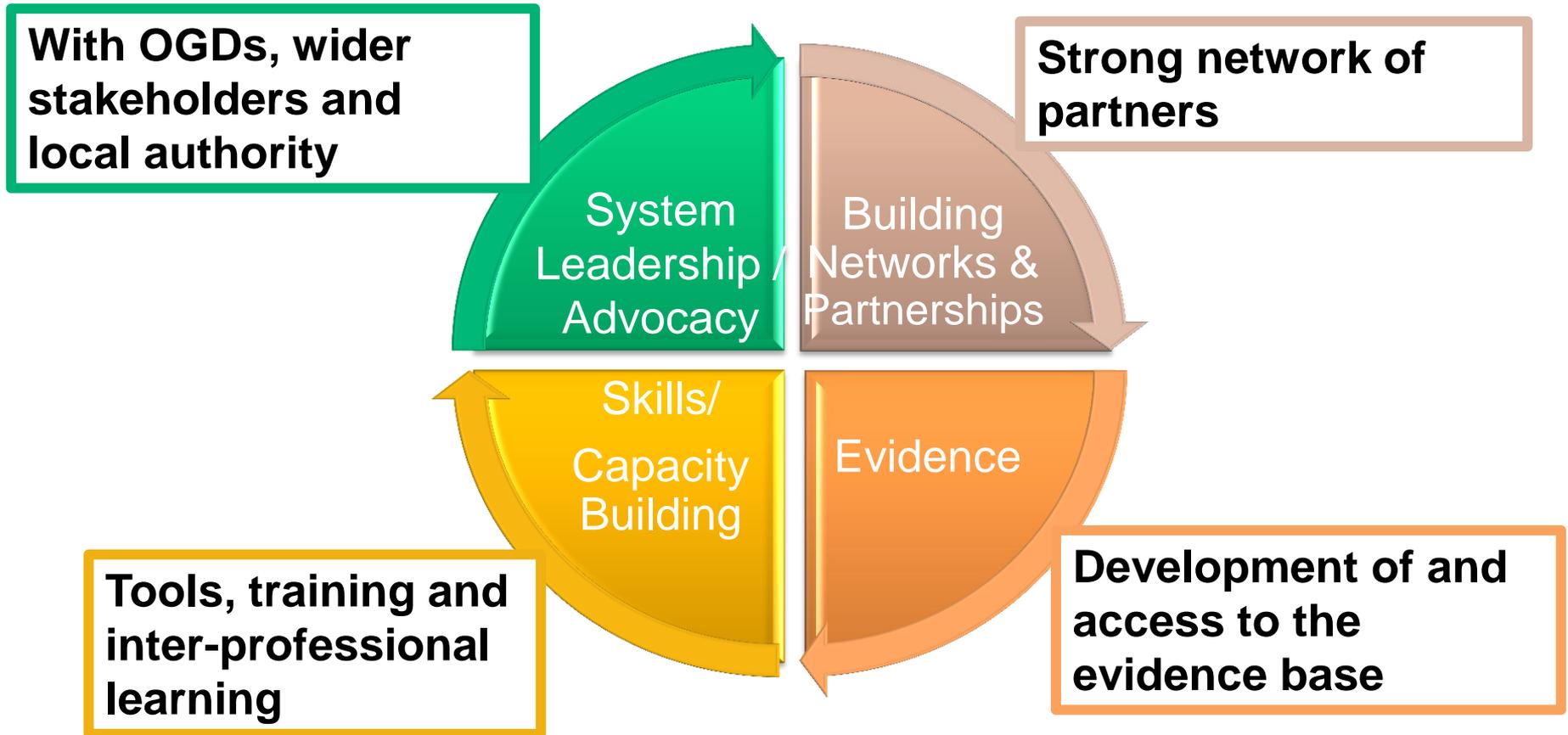
Economic case for action

- **Diet-related** ill health cost the NHS £5.8 billion per year
- **Physical inactivity** contributes to one in six deaths in the UK and costs £7.4 billion a year to business and wider society
- £2.1 billion would be saved annually through averted health costs if everyone in England had equally good access to **green space***
- View of **green space** from home is estimated to have a health value of £135-452 per person*
- Having your own **garden** is valued at £171-575 per person per year*





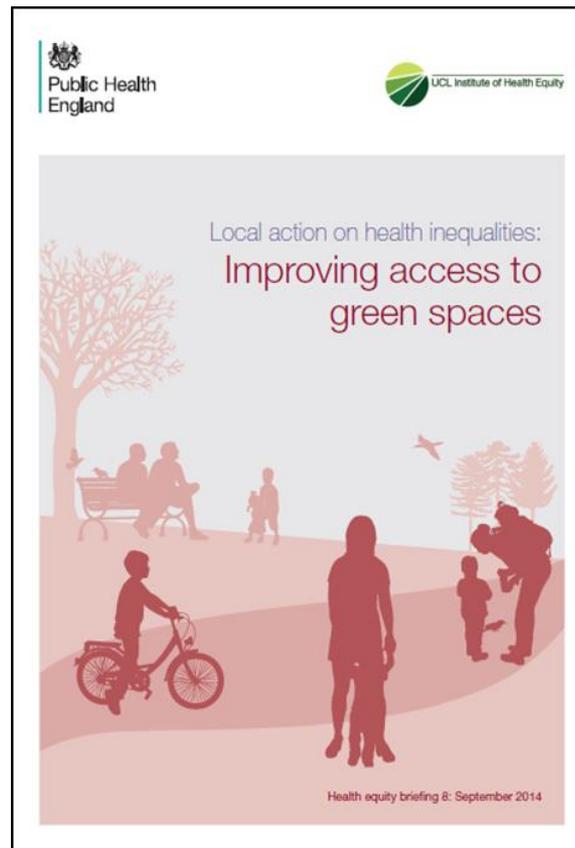
PHE Healthy Places programme





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Improving Access to Green Spaces



Evidence: Natural Environment

Direct health benefits from:

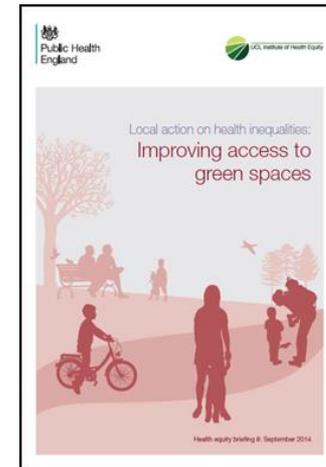
- Improved mental wellbeing
- Higher levels of physical activity
- Community cohesion
- Reduced social isolation

Indirect health benefits from:

- Mitigating adverse impacts: air quality; noise; heat; flooding, climate change
- Helping people appreciate the importance of nature and the need to protect it for future generations

Greater health benefits from environments that are:

- Biodiverse, clean, well maintained, safe, as well as those that are available in greater proximity and quantity



Refs: PHE. Local Action on Health Inequalities: Improving access to green spaces. 2014; Defra. Evidence Statement on the links between natural environments and human health. 2017



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Spatial Planning for Health



Genesis of the Evidence Resource

- evidence base still a matter of debate amongst the scientific community;
- A lot of the evidence around the impacts of the built environment on health comes from outside the UK or outside of Europe;
- What should public health specialist be asking for?
- What should planners be delivering?
- Does it work?
- Inform PHE's national advocacy work



Methodology

- Umbrella review of other systematic evidence reviews
- Complemented by selected empirical studies
- Concentrated on 5 key themes:
 - Neighbourhood Design
 - Housing
 - Healthy Food
 - Natural and Sustainable Environment
 - Transport

Evidence: Spatial planning for health



Principles for natural and sustainable environments:

1. Reduce exposure to environmental hazards
2. Provide access to and encourage engagement with the natural environment
3. Encourage adaptation to climate change



Adaptation to climate change



Reduce exposure to environmental hazards



Access to and engagement with the natural environment

<https://www.gov.uk/government/publications/spatial-planning-for-health-evidence-review>



Natural & Sustainable Environments

Quality of Evidence:

- ▲ Improved
- ▼ Reduced
- High Quality
- Medium Quality
- Low Quality
- NR (Not reported):

Methodological quality of the original research is unclear and should be treated with caution.

Greyed Out Text
Association between a health impact & health outcome not obtained as part of the umbrella review.

Best Available Evidence:

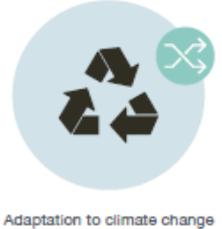
★ In some instances, more than one piece of review-level evidence reporting on the same health impacts and/or outcomes was identified as part of this umbrella review. In such instances this table highlights findings of the review(s) which reported evidence of the best methodological quality.

Population Groups:

- General Population
- Older Adults
- Children & Adolescents

Disclaimer:
This diagram has been produced as part of a wider evidence resource, commissioned by Public Health England and developed by the University of the West of England. Please see the document Spatial planning for health: an evidence resource for planning and designing healthier places for further information.

Planning Principles



Modifiable Features

- Improved air quality
- Exposure to air pollution
- Excessive noise
- Reduce impact of flooding

- Provision of access and engagement opportunities with the natural environment
- Aesthetic park improvements
- Participation in physical activity in an outdoor setting

- Prioritisation of neighbourhood tree planting
- Tackle climate change

Impact

- Physical activity among older adults
- Exposure to particulate matter and other gaseous pollutants
- Exposure to excessive noise

- Physical activity ★
- Active travel
- Mobility among older adults
- Physical activity
- Social participation among older adults
- Physical activity among children
- Motivation to engage in physical activity
- First-time park users ★
- Physical activity among children and older adults
- Physical activity

- Urban Heat Island effect
- Heat and cold extremes

Health Outcomes

Risk of CVD, type 2 diabetes, stroke, mental health problems, musculoskeletal conditions and some cancers; Improved mental wellbeing

Risk of COPD, healthy birth weight, reduction in myocardial infarction, reduction in risk of out-of-hospital cardiac arrest

Cognitive function, improved birth outcomes, reduction in infant mortality and improved respiratory function amongst children.

Lung cancer

Mental health outcomes amongst older adults and children

Mental health outcomes amongst older adults

Ischemic heart disease

Risk of Carbon Monoxide poisoning ★

Mental health and wellbeing ★

Risk of CVD, type 2 diabetes, mental health problems, musculoskeletal conditions and some cancers; Improved mental wellbeing

Risk of CVD, cancer, obesity and type 2 diabetes. Keeping the musculoskeletal system healthy. Promoting mental wellbeing

Physical health outcomes amongst older adults

CVD mortality risk

Mental wellbeing

Cardiovascular health, maintaining a healthy weight, improved bone health, Improved self-confidence, develop new social skills

Influences personal decisions which may lead to increased physical activity

Obesity among adolescents

Mental health outcomes

Mental health outcomes

Cardiovascular health, maintaining a healthy weight, improved bone health, Improved self-confidence, develop new social skills

Risk of CVD, cancer, obesity and type 2 diabetes. Keeping the musculoskeletal system healthy. Promoting mental wellbeing

Mental health outcomes

Health outcomes ★

Excess winter death and illness



Key Messages



Natural and Sust. Env.

Reduce exposure to
environmental
hazard

- Improved air quality
- Exposure to air pollution
- Excessive noise
- Impact of flooding



Increase access to
and engagement with
the natural
environment

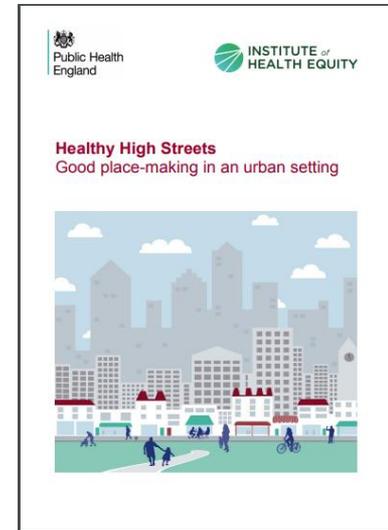
- Aesthetic park improvements
- Improve access and maximise opportunities for outdoor activities
- Tackle climate change
- Neighbourhood tree planting



Evidence: Healthy Highstreets

For optimum health promotion and to be considered a significant community asset, high streets should:

- be inclusive of people from all walks of life
- be easy to navigate
- **provide shade and shelter and places to stop and rest**
- be walkable and provide options for cycling
- **have low levels of noise and air pollution**
- provide things to see and do and have a health promoting retail offer
- ensure people feel relaxed and safe
- consider the local context of high street focused on how high street factors interact with one another.





Department
for Environment
Food & Rural Affairs

The 25 Year Environment Plan





25 YEP: 6 Key areas for action

1. Using and managing land sustainably

2. Recovering nature and enhancing the beauty of landscapes

3. Connecting people with the environment to improve health and wellbeing

4. Increasing resource efficiency, and reducing pollution and waste

5. Securing clean, productive and biologically diverse seas and oceans

6. Protecting and improving the global environment

Health and wellbeing is a key theme in the “connecting people” chapter because of the evidence linking natural environments with health

- Spending time in the natural environment improves our mental health and feelings of wellbeing. It can reduce stress, fatigue, anxiety and depression. It can help boost immune systems, encourage physical activity and may reduce the risk of chronic diseases such as asthma. It can combat loneliness and bind communities together.
- The number of people who spend little or no time in natural spaces is too high. Recent data from the Monitor of Engagement with the Natural Environment survey tells us that some 12% of children do not visit the natural environment each year.
- In the most deprived areas of England, people tend to have the poorest health and significantly less green space than wealthier areas.
- In healthcare and school settings, and despite some excellent examples of pioneering practice, the possible benefits of contact with nature to promote good mental health or support early interventions for mental health problems are often overlooked.



25 YEP: Helping People Use Green Space 'Actions'

Government commitment		Actions
i	Considering how environmental therapies could be delivered through mental health services	Considering how NHS mental health providers in England could work with environmental voluntary sector organisations to offer mental health therapies.
		Sharing lessons learned from existing social prescribing programmes widely so others can adopt best practice.
		Developing standardised tools for service providers to support the roll-out of social prescribing
ii	Promoting health and wellbeing through the natural environment	Establishing a cross-government alliance on environment and health to design and oversee the 'Natural Environment for Health and Wellbeing' programme.
		Supporting the alliance to review evidence, develop tools and support local authorities, commissioners, and professionals



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Concluding Thoughts

Improving access to green spaces

Summary

- There is significant and growing evidence on the health benefits of access to good quality green spaces. The benefits include better self-rated health; lower body mass index, overweight and obesity levels; improved mental health and wellbeing; increased longevity.
- There is unequal access to green space across England. People living in the most deprived areas are less likely to live near green spaces and will therefore have fewer opportunities to experience the health benefits of green space compared with people living in less deprived areas.
- Increasing the use of good quality green space for all social groups is likely to improve health outcomes and reduce health inequalities. It can also bring other benefits such as greater community cohesion and reduced social isolation.
- Local authorities play a vital role in protecting, maintaining and improving local green spaces and can create new areas of green space to improve access for all communities. Such efforts require joint work across different parts of the local authority and beyond, particularly public health, planning, transport, and parks and leisure.



Evidence into practice: Key opportunities

- Defra's 25 Year Environment Plan (25YEP) - commitment to 'green our towns and cities by creating green infrastructure'
- National Planning Policy Framework – currently being updated – opportunity to influence inclusion of health and natural environment (linked to 25YEP)
- NHS Healthy New Towns – Opportunity to share learning about what works in creating a healthy, sustainable place



Evidence into practice: Key Guidance/ Tools

- **Natural England Green Infrastructure Guidance.**
- **TCPA. Garden City Standards for the 21st Century: Guide 7 planning for green and prosperous places.**
- **Landscape Institute. Green Infrastructure: An Integrated approach to land use.**
- **Tree and Design Action Group. Trees in the Townscape: A guide for decision makers.**
- **WHO. Urban Green Spaces: A brief for action.**
- **NICE Guidance. Air Quality: Outdoor air quality and health**
- **Natural England. Nature Nearby: Accessible Natural Greenspace Standard.**
- **Building with Nature.**
- **TCPA. The Green Space Factor and the Green Points System.**



Evidence into practice:

Developing the Evidence Base and Evaluation of Impacts

- **Absence of clear guidance on what ‘good’ green infrastructure** looks like means monitoring and evaluation is challenging
- **Relevant Public Health Outcomes Framework (PHOF) indicators:** air quality, the utilisation of green space for exercise of health reasons and the Access to Health Assets and Hazards Index
- **Wider range of PHOF indicators indirectly impacted:** physical activity; healthy weight; mental wellbeing and social isolation will also
- **WHO guidance** suggests what to consider in monitoring and evaluation and some **toolkits for assessment of healthy built environment** could be adapted for the monitoring of specific local green infrastructure interventions



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Evidence into practice: Next Steps

Proposals in 25YEP

- explore how national spatial data and strategies could be used to support, amongst other things, an increase in green infrastructure
- develop a national framework of green infrastructure standards by summer 2019, with new standards on green infrastructure to be incorporated into the National Planning Policy Framework in the future

How do we develop standards which:

- are meaningful for health and wellbeing
- support the use of routinely available data
- are available at appropriate spatial scales to enable evidence-based decision making about investment to support health and wellbeing
- How much (green space); what type; and how accessible - to make discernible differences to health.



News/ Views/ Evidence Updates

Sign up to our Knowledge Hub – “healthy places”

<https://khub.net/group/healthypeoplehealthyplaces>

Including month Current Awareness Evidence Updates

The screenshot shows the Knowledge Hub interface for the 'PHE Healthy Places' group. The top navigation bar is green and includes the 'Knowledgehub' logo, tabs for 'GROUPS', 'PEOPLE', and 'NETWORKS', and a user profile for 'FY Fiona' with notification icons. Below this is a dark grey navigation bar with icons for 'FORUM', 'LIBRARY', 'BLOGS', 'EVENTS', 'MEMBERS', 'REPORTS', and 'SETTINGS'. The main content area features a purple square with 'PHP' and the text 'Last activity - This month'. To the right, the group title 'PHE Healthy Places' is displayed, followed by a description: 'Public Health England's (PHE) Healthy Places programme, set up in 2013, works in partnership with local and national partners on a wide range of activities related to 'place'. Below this is a paragraph: 'Where we live, work and play has a big impact on our health and wellbeing. The programme supports the development of healthy places and homes.' A note follows: 'Please note that the any information or activity posted via this Forum do not necessarily represent the view, or have the endorsement of PHE, unless expressly identified as such.' On the left side of the main content, there are options: 'You joined', 'Add to favourites', 'Unsubscribe', 'Leave the group', and 'This is a restricted group'. At the bottom, it states 'Started - January 2014' and '288 Members'.



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Thank you!

