

# PUBLIC HEALTH ANNUAL REPORT 2024

HEALTH,  
SUSTAINABILITY  
AND CLIMATE  
RESILIENCE

# EXECUTIVE SUMMARY

The environment has a big impact on our mental and physical health and the climate emergency is one of the most significant threats to our population locally and globally.



The WHO estimates that around a quarter (25%) of deaths worldwide are attributable to environmental factors. In Portsmouth, it is estimated that nearly 1 in 5 (17%) heart disease and stroke deaths and over a quarter (28%) of deaths due to Chronic Obstructive Pulmonary Disorder and lower respiratory infections can be attributed to environmental and occupational risks.<sup>1</sup>

This year's Director of Public Health report takes the theme of health, sustainability and climate resilience and the positive co-benefits of climate action for the health of our population in Portsmouth.

It examines the health impacts of climate change on our residents, including the way climate change is already influencing lives in Portsmouth, and ways we are supporting climate adaptation. It also makes recommendations for strengthening our response.

This report examines four key areas of public health concern for Portsmouth:

 **Extreme heat**

 **Flooding**

 **Air pollution**

 **Insect-borne disease**

The way that the climate crisis interacts with, and exacerbates, other environmental and socio-economic challenges such as inequality, animal and ecosystem health has been described by some as a 'syndemic'.

This inter-relatedness also means that actions to reduce carbon emissions and improve resilience to climate change, also produce a wide range of co-benefits, for human and planetary health.

'No-regrets', and 'win-win-win' solutions are precautionary approaches with limited trade-offs, meaning they reduce negative impacts on the climate, while at the same time benefiting the 'triple bottom line' of health, society and the economy and ecosystems.

Three key themes form a **'golden thread'** through the whole report that support a 'no-regrets' approach to realise those co-benefits:

### **'One Health'**

The health of humans, ecosystems and animals are closely interlinked. The World Health Organisation (WHO) uses 'One Health' as an approach which optimises the health of humans, ecosystems and animals by addressing the linkages and interactions between these fields, rather than keeping them separate.<sup>2</sup>

### **Addressing health inequalities**

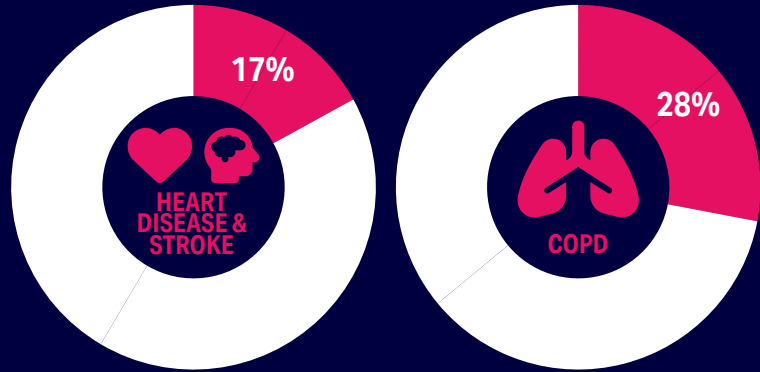
The importance of the environment to our health has been shown through increases in health inequalities in the UK which in turn have been linked to worsening social and economic conditions over recent years.<sup>3</sup> Vulnerable residents, including those with pre-existing conditions, the elderly, the very young and disadvantaged communities, are worst affected by climate change and will be most at risk in future, making addressing health inequalities even more important.

### **Nature-based solutions**

Nature-based solutions protect or enhance nature in a way that helps tackle environmental challenges, while benefitting biodiversity and human wellbeing.<sup>4</sup> Examples include tree planting, green screens to trap air pollution and sustainable drainage systems (SuDS) that include rain gardens and swales.

## Deaths linked to environmental and occupational factors in Portsmouth

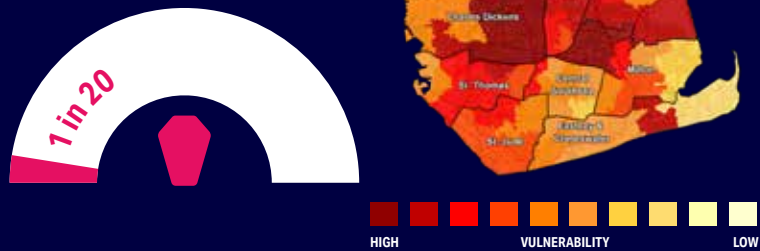
Currently, nearly a fifth of heart disease and stroke deaths and over a quarter of Chronic Obstructive Pulmonary Disorder (COPD) deaths in Portsmouth are linked to environmental and occupational factors.



## AIR QUALITY

In 2022, the proportion of adult deaths attributable to long-term exposure to particulate air pollution in Portsmouth was over 1 in 20 deaths (6.2%). Higher than the England average (5.8%).

Over half of the Portsmouth population are highly vulnerable to air pollution according to the UK Health Security Agency (around 110,022 people).



## FLOODING

Most of Portsmouth has a high probability of flooding from rivers and the sea



## INSECT-BORNE DISEASE

Diseases carried by insects like mosquitoes and ticks cause more than 700,000 deaths globally each year.

The invasive tiger mosquito can transmit viruses including Dengue, Chikungunya and Zika. The warming climate in the South East is already suitable for disease carrying mosquitoes.

**6** The number of times the UKHSA and local authorities have detected the invasive tiger mosquito in the UK along transport routes from Europe.



## EXTREME HEAT



The average annual temperature in Portsmouth may increase by 2.22 degrees centigrade by 2050.



Summer rainfall for the city is predicted to fall by 20%, resulting in more frequent and severe heatwaves.



Heat-related deaths could increase around 6-fold by the 2050s (to nearly 11,000 heat-related deaths per year in the UK)



While we make every effort to continue to decarbonise, we must also begin to adapt.

Many risks to health are preventable through adaptation at low levels of climate warming.<sup>5</sup> Ensuring we adapt our built environment to minimise heat, flooding, pollution, vector transmission and other climate impacts, will protect us all and particularly the most vulnerable in our communities. There is more we can do as a city to ramp up our adaptation response, and better coordinate existing interventions between organisations and communities, especially those at greatest risk.

This report also gives **hope**. There are substantial co-benefits to many of the interventions recommended. The report highlights the ways we can provide 'win-win-win' solutions that benefit health, ecosystems and socio-economic wellbeing for Portsmouth, and gives examples of how this is already happening in our city, for the benefit of all.

*'The feeling of 'it's too late' just leads to inaction and paralysis. The science is very clear that it's never too late'.*

**Climate Scientist Hannah Ritchie<sup>6</sup>**



## RECOMMENDATIONS: WHAT MORE CAN WE DO?

Work is already underway in Portsmouth to limit carbon emissions and prevent further climate change in the future.

But we can do more and begin to adapt to the current reality of our changing climate, which is impacting on the Portsmouth population now.



# EXTREME HEAT



A number of initiatives and plans are in place to tackle extreme heat in Portsmouth, particularly for the most vulnerable. Mitigation and adaptation measures already underway in the city include behavioural change messaging, use of national heat alert systems, sharing alerts with health and social care sites and energy efficiency measures for housing through work in Housing, Neighbourhood and Building Services via the Switched On Portsmouth and social housing improvement programmes.

In the future, this work could be expanded to provide **improved awareness of protective behaviours and interventions**, including improved response mechanisms and networks between public health, emergency planning, health and social care and the voluntary sector to provide safety netting in extreme heat for vulnerable individuals.

**Systematically developing heat resilient spaces** in the city will ensure that all high-risk groups are given the support they need – older adults, children and

those living in densely populated areas more susceptible to heat island effects, in accommodation that is poorly ventilated, insulated or overcrowded.

Heat mitigation measures also need to become standard in the **planning and development** process, for buildings and public space. New homes and building renovation should adhere to building regulations, Decent Homes Standards, National Design Guide and National Model Design Codes to ensure thermal comfort.<sup>7</sup>

A programme of **increased shading and increasing availability of green space** is underway through the Greening Strategy. The model at Royal Albert Day Centre is part of broader work to assess heat risk in care homes, schools and play areas in the city, and could be expanded to other sites.





# FLOODING



We should continue to **prioritise protection and spatial planning measures**<sup>9</sup> for homes, public space, businesses and institutions to further mitigate flood risk and limit the negative health impacts of flooding.

We should continue to support plans already underway to **expand the use of Sustainable Drainage Systems (SuDS)** to limit surface water flooding, prioritising areas and populations at greatest risk.

In addition to supporting existing emergency plans in response to flooding, we should continue to work on **identifying and protecting those at greatest risk**. Including promoting measures to ensure the continuity of the NHS services and health care facilities including residential care homes during flood events, for example using the NHS Green Plan and the Local Health Resilience Partnership to support this.

Many small changes can have a big impact on flood water quantity and quality, and as a city we should **maximise the co-benefits of flood risk management**. Nature-based solutions like increased green infrastructure to reduce flood risk also have positive benefits for physical and mental health.



# AIR POLLUTION



We can have a greater positive effect on both health and the environment if we align the two agendas of air pollution and climate. Air pollutants and greenhouse gases often come from the same sources, such as diesel-fuelled vehicles. Emerging evidence<sup>9</sup> suggests that it is potentially more cost-effective for local authorities to **integrate air quality and climate change policy**.

No single intervention to improve air quality is most effective alone. **Combined interventions** tailored to specific places work best. Many are already underway in the city including promotion of active travel, electrification of transport, comprehensive air quality monitoring and clean energy through the Switched On Portsmouth programme and building efficiency.

However, more can be done in the city to improve air quality; in particular, doubling our efforts on:

- Promoting a **hierarchy approach** as standard to prevent, mitigate and avoid air pollution
- Routinely **prioritising and promoting active travel** over other forms of transport in policy and adhering to NICE guidance on air pollution and physical activity: walking and cycling<sup>10</sup> for active travel.
- More effectively using **urban planning and policy to reduce emissions and concentrations of air pollution**. Evidence based measures include expanding low emissions zones/low traffic neighbourhoods; promoting clean construction; increased use of green infrastructure to capture pollutants; and reducing waste/landfill emissions.



# INSECT-BORNE DISEASE



Currently, the risk to the local population from insect-borne disease (also known as vector-borne disease) is very low. However, the UKHSA predict that with warming temperatures, we can expect the introduction and establishment of invasive mosquito species in the UK over coming years, which can carry infectious disease.<sup>11</sup>

## **Continued enhanced mosquito surveillance**

and early detection of disease will limit risk to the Portsmouth population.

Some measures intended to mitigate the effects of climate change, such as roadside gully drains, and even household garden water storage (like uncovered water-butts), can inadvertently provide habitats for both native and invasive mosquito species as some species breed in standing or shallow water.<sup>12</sup> Green infrastructure can provide habitat for urban ticks which transmit Lyme Disease. **Carefully managed nature-based solutions** are therefore important to keep



vectors and people apart wherever possible, especially important in a densely populated city like Portsmouth.

Adaptation will become increasingly important for reducing the burden of vector-borne diseases. This includes routine **vaccination** where relevant, individual measures such as **behaviour change and improving public awareness**, so that people know how to avoid bites to protect themselves from mosquitoes and other vectors.<sup>13</sup> It also includes changes to building design, such as screens on windows and doors and increased awareness in health services on the frontline and in diagnostics.<sup>14</sup>

# REFERENCES

- 1 Institute for Health Metrics and Evaluation (IHME), **Global Burden of Disease 2021: Findings from the GBD 2021 Study**. Seattle, WA: IHME, 2024. VizHub, GBD Compare <https://vizhub.healthdata.org/gbd-compare>
- 2 World Health Organization, **One Health** [www.who.int/news-room/fact-sheets/detail/one-health](http://www.who.int/news-room/fact-sheets/detail/one-health)
- 3 GOV.UK, **Climate change: health effects in the UK** [www.gov.uk/government/publications/climate-change-health-effects-in-the-uk](http://www.gov.uk/government/publications/climate-change-health-effects-in-the-uk)
- 4 Michael Marmot, Jessica Allen, Tammy Boyce, Peter Goldblatt, Joana Morrison (2020) **Health equity in England: The Marmot Review 10 years on. London: Institute of Health Equity** [www.instituteofhealthequity.org/resources-reports/marmot-review-10-years-on/the-marmot-review-10-years-on-full-report.pdf](http://www.instituteofhealthequity.org/resources-reports/marmot-review-10-years-on/the-marmot-review-10-years-on-full-report.pdf)
- 5 GOV.UK, **Climate change: health effects in the UK** [www.gov.uk/government/publications/climate-change-health-effects-in-the-uk](http://www.gov.uk/government/publications/climate-change-health-effects-in-the-uk)
- 6 BBC, **A leading data scientist's journey from doomism to climate hope** [www.bbc.com/future/article/20240206-hannah-ritchie-sustainability-data-spreads-hope-not-doomism](http://www.bbc.com/future/article/20240206-hannah-ritchie-sustainability-data-spreads-hope-not-doomism)
- 7 Town and Country Planning Association, **Securing Healthy Homes at the local level** [www.tcpa.org.uk/wp-content/uploads/2024/06/Healthy-Homes-technical-guide-for-local-implementation.pdf](http://www.tcpa.org.uk/wp-content/uploads/2024/06/Healthy-Homes-technical-guide-for-local-implementation.pdf)
- 8 UK Health Security Agency, **HECC report 2023. Chapter 3: Climate change, flooding, coastal change and public health** <https://assets.publishing.service.gov.uk/media/657086ad746930000d488919/HECC-report-2023-chapter-3-flooding.pdf>
- 9 E Hock et al. **In press 'Neighbourhood-level interventions to reduce outdoor air pollution: evidence synthesis'**.
- 10 National Institute for Health and Care Excellence, **Air pollution: outdoor air quality and health** [www.nice.org.uk/guidance/ng70/chapter/Recommendations](http://www.nice.org.uk/guidance/ng70/chapter/Recommendations)
- 11 GOV.UK, **UKHSA Advisory Board: core preparedness for environmental hazards** [www.gov.uk/government/publications/ukhsa-advisory-board-meeting-papers-march-2024/ukhsa-advisory-board-core-preparedness-for-environmental-hazards#:~:text=Under%20warming%20temperatures%2C%20we%20can.including%20dengue%2C%20chikungunya%20and%20Zika](http://www.gov.uk/government/publications/ukhsa-advisory-board-meeting-papers-march-2024/ukhsa-advisory-board-core-preparedness-for-environmental-hazards#:~:text=Under%20warming%20temperatures%2C%20we%20can.including%20dengue%2C%20chikungunya%20and%20Zika).
- 12 Brown HE, Keith L, Madera-Garcia V, Taylor A, Ramirez N, Ogata I. **Greening Up For Mosquitoes: A Comparison of Green Stormwater Infrastructure in a Semiarid Region. J Am Mosq Control Assoc. 2022 Jun 1;38(2):109-112. doi: 10.2987/21-7055. PMID: 35588179.**
- 13 World Health Organisation and TDR (2017), **Global Vector Control Response (GVCR) 2017-2030** <https://iris.who.int/bitstream/handle/10665/259205/9789241512978-eng.pdf>
- 14 UK Health Security Agency, **HECC report 2023. Chapter 8. Direct and indirect effects of climate change on vectors and vector-borne diseases in the UK** <https://assets.publishing.service.gov.uk/media/65708af2809bc3001330819c/HECC-report-2023-chapter-8-vector-borne-diseases.pdf>

## INFOGRAPHIC DATA SOURCES

### AIR QUALITY

Public Health Outcomes Framework, Office for Health Improvement and Disparities. Public Health profiles, 2024. (<https://fingertips.phe.org.uk>)

© Crown Copyright, 2024. Date accessed: 10 May 2024.

UKHSA Air quality vulnerability index, pilot data. ([www.shapeatlas.net](http://www.shapeatlas.net))

### FLOODING

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### INSECT-BORNE DISEASE

Vector-borne diseases ([www.who.int](http://www.who.int))

UK Health Security Agency, HECC report 2023. Chapter 8. Direct and indirect effects of climate change on vectors and vector-borne diseases in the UK. (<https://assets.publishing.service.gov.uk/media/65708af2809bc3001330819c/HECC-report-2023-chapter-8-vector-borne-diseases.pdf>)

### EXTREME HEAT

Local Climate Adaptation Tool ([icat.uk](http://icat.uk))

Climate Risk Indicators ([uk-cri.org](http://uk-cri.org))

HECC 2023 report. Chapter 2: Temperature effects on mortality in a changing climate. (<https://assets.publishing.service.gov.uk/media/659ff712e96df5000df844bf/HECC-report-2023-chapter-2-temperature.pdf>)



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