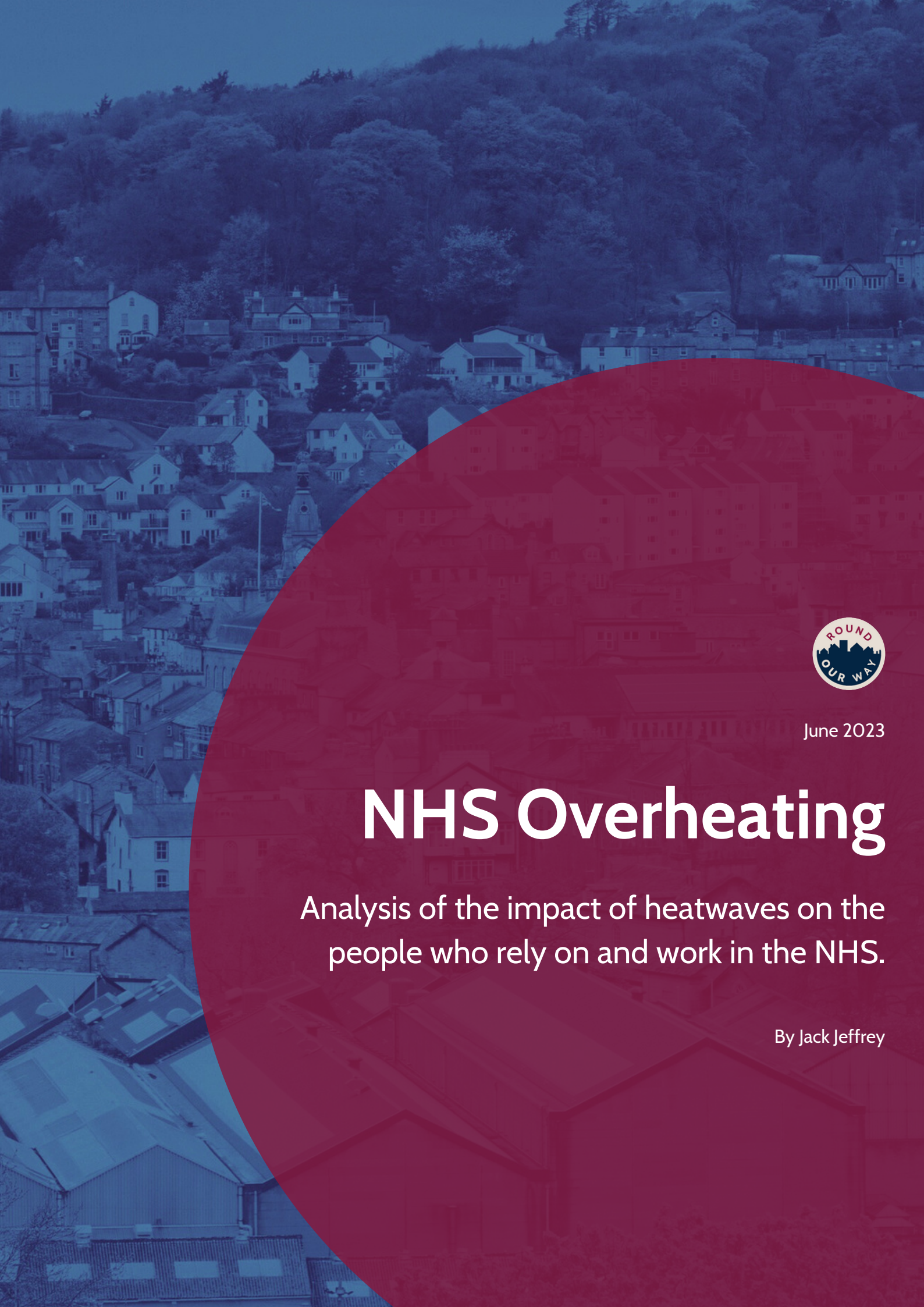

June 2023

NHS Overheating

Analysis of the impact of heatwaves on the people who rely on and work in the NHS.

By Jack Jeffrey

About Round Our Way

Keeping the people and places we love safe.

Round Our Way is a new group for working and lower-middle class people who are increasingly worried about climate change but feel our voices are missing from the debate.

We use research and personal stories to get more attention paid to the impact climate change is having on our lives, from rising food prices to more of our homes being flooded. We make sure our worries can't be ignored and work to get our voices put at the heart of decision-making.

Round Our Way was founded by Roger Harding. After being raised by a single mum in a council house, Roger has gone on to have a career fighting for people not to have to struggle as his family did. For several years he was a director at the homeless and housing charity Shelter, successfully pushing for more affordable homes to be built and creating stronger protections for families facing eviction and repossession. Before leaving to create Round Our Way, Roger was Chief Executive of RECLAIM, the Greater Manchester-based working class youth charity. He serves as Vice Chair of Victim Support.

About this report

This report was written for Round Our Way by Jack Jeffrey, with input from Roger Harding. We are grateful to all the health professionals who have fed into this work and commented on its findings.

Contents:

Executive Summary

This report brings together and analyses various studies examining the impact of hot weather and heatwaves on the National Health Service (NHS) in England. Climate change is generating more extreme weather, which is increasing baseline summer temperatures and making instances of heatwaves increasingly numerous and intense in the UK. This research looks at this growing risk to the NHS, the people who work in it and the people who rely on its services.

Our analysis highlights:

- The NHS is already under considerable pressure, and this is being made worse by increases in extreme weather which increase mortality rates, cause ill health and impact NHS infrastructure, compromising patient care.
- In particular, overheating is already impacting a significant number of NHS sites, with a doubling of recorded overheating occurrences over the past five years.
- Between April 2021-March 2022 there were 5,554 instances of overheating at NHS sites, up from 2,980 recorded incidents in 2016/2017.
- Trusts in the North West and Midlands were the worst affected, with Wrightington, Wigan and Leigh NHS Foundation Trust (2,829) in Wigan and Sandwell and West Birmingham NHS hospital Trust (840) in West Bromwich incurring the most instances of overheating.
- Hospital admissions increase during hot weather, putting additional pressure on NHS infrastructure and staff. Last year also saw the highest number of heat-related deaths (2,895) since records began.
- An estimated 90% of current UK hospitals are at risk from overheating. With heatwaves predicted to become more frequent and intense, it is highly likely overheating incidents at NHS sites will increase, and potentially be more disruptive.

Context

The UK has slowly been getting warmer. The longest running instrumental record of temperature in the world, the Central England Temperature (CET) dataset collected by the Met Office, shows that the most recent decade (2009-2018) was around 1°C warmer than the pre-industrial period (1850-1900). The temperature rise of roughly 1°C is consistent with warming observed at a global scale since pre-industrial levels.

Last year was the UK's warmest year since records began in 1659.[1] The annual mean CET was 11.1°C, only the second time it has reached 11°C or higher, the other being in 2014. All of the top 10 warmest years have occurred since 2002.

One impact of anthropogenic change in UK temperature levels is more frequent, more intense and longer-lasting periods of hot weather and heatwaves, typically in the summer. Evidence points towards the UK experiencing warmer summers in recent decades, with an increase in the average hottest day of the year and a doubling in the average length of hot/warm spells.[2]

Seven of the top ten hottest temperatures in the UK have occurred this century, with the hottest ever recorded last year when temperatures in Coningsby, Lincolnshire hit 40.3°C, 1.6°C warmer than the previous record. Other research from Round Our Way found that places like Peterborough, St Albans, Cambridge and Chelmsford recorded average temperatures comparable with average temperatures in Tarouca in Portugal between 1990 and 2020.[3]

Aside from breaking the 40°C threshold for the first time, the 2022 heatwave was also unprecedented because of its scale. While the previous records were the result of high

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[1] Met Office Hadley Centre. (accessed 20 May 2023), Climate change drives UK's first year over 10°C. Available at https://www.metoffice.gov.uk/about-us/press-office/news/weather-and-climate/2023/climate-change-drives-uks-first-year-over-10c

[2] Met Office Hadley Centre. (accessed 20 May 2023), UK and Global extreme events – Heatwaves. Available at https://www.metoffice.gov.uk/research/climate/understanding-climate/uk-and-global-extreme-events-heatwaves

[3] Callendar. (2023), Unprecedented Heat: In 2022, UK temperatures 'moved' 330 kilometres south on average. Round Our Way. Available at https://www.roundourway.org/our-impact/uk-temperatures-moved-205-miles-south-on-average-last-year-with-slough-now-as-hot-as-tarouca-portugal

temperatures in small areas of the country, 46 separate monitoring stations breached the previous temperature record.[4] Another notable feature was how far north the extreme heat extended, with 39.6°C recorded in North Yorkshire and 38.4°C in Cheshire.

A study from the World Weather Attribution group, found that the 2022 heatwave was made at least 10 times more likely by human-induced climate change, and that temperatures were around 2°C hotter than they would have been without human influence.[5] Other attributional studies of previous heatwaves also found that similar periods of extreme weather would be very unlikely in the absence of anthropogenic climate change.[6]

Further increases in the intensity and frequency of heatwaves and rising average summer temperatures are highly likely according to the latest UK18 Met Office projections. Under a 'business as usual' scenario (where no further action is taken to curb emissions) the average UK temperature in summer (June, July, August) will surpass 26°C by 2060 and 30°C by the end of the century.[7]

In addition, extreme heat events are also predicted to become more common. For instance, at present a 40°C day somewhere in the UK is estimated to occur roughly every 100 to 300 years. By 2100, under an intense warming scenario, a 40°C day is predicted to occur once every 3.5 years.[8]

Why is hot weather and heatwaves serious for the UK?

Heatwaves and hot weather pose a particular risk to the UK, a country with little experience of extreme heat and therefore unaccustomed to responding to high temperatures. To address these shortcomings, specifically in response to the 2003 heatwaves that caused over 2,000 excess deaths, a heatwave plan for England was issued in 2004, and has since undergone annual updates, which intends to protect the population from heat-related harm to health.

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[4] Met Office Hadley Centre. (accessed 20 May 2023), Unprecedented extreme heatwave, July 2022. Available at https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/interesting/2022/2022_03_july_heatwave_v1.pdf

[5] Otto, F et al. (2022), Without human-caused climate change temperatures of 40°C in the UK would have been extremely unlikely. World Weather Attribution. Available at https://www.worldweatherattribution.org/wp-content/uploads/UK-heat-scientific-report.pdf

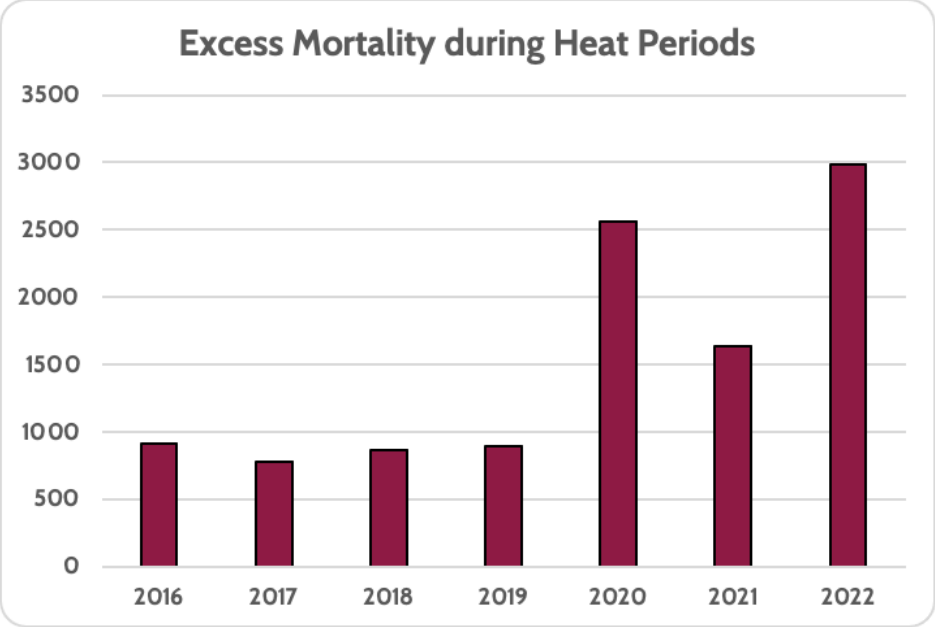
[6] Vautard, R et al. (2020), Human contribution to the record-breaking June and July 2019 heatwaves in Western Europe in Environmental Research Letters, vol.15, no.9. Available at https://iopscience.iop.org/article/10.1088/1748-9326/aba3d4

[7] https://autonomy.work/portfolio/left-out-in-the-sun/ p19

[8] Christidis, N et al. (2020), The Increasing Likelihood of Temperature above 30 to 40°C in the United Kingdom. Nature Communication. Available at https://www.nature.com/articles/s41467-020-16834-0

It is widely accepted that high temperatures directly impact human health, resulting in increases in mortality (death) and morbidity (illness). According to the UK Health Security Agency that's been tracking the adverse impact of heat episodes in England since 2016, last year saw 2,895 heat-related deaths, the highest number on record. While the risk of mortality increases at high temperatures across all populations[9], the over-65s account for the vast majority of heat-related deaths.

Moreover, recent projections for heat-related mortality suggest the impact of hot weather is set to get substantially worse. Researchers found that even under low warming scenarios (assuming no additional adaptation) average annual deaths are predicted to increase by 125%. Under a 4°C warming scenario deaths per year are estimated to exceed 18,000 by 2100, an increase of 1,232%, with older populations most at risk.[10]



Source: Round Our Way analysis of UKHSA and ONS data[11]

[9] Guo et al. (2018), Quantifying excess deaths related to heatwaves under climate change scenarios: A multicountry time series modelling study in PLOS Medicine, vol.45, no.1-2. Available at https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1002629

[10] Jenkins, K et al. (2022), Updated projections of UK heat-related mortality using policy-relevant global warming levels and socio-economic scenarios in Environmental Research Letters, vol.17, no.11. Available at https://iopscience.iop.org/article/10.1088/1748-9326/ac9cf3

[11] UK Health Security Agency. (Accessed 12 June 2023), Heat Mortality Monitoring Reports. Available at https://www.gov.uk/government/publications/heat-mortality-monitoring-reports. These figures do not include deaths attributed to coronavirus (COVID-19).

Hot weather also has a range of impacts on human well-being that affect all ages. In addition to heatstroke, heat exhaustion and dehydration, hot temperatures are also associated with an increased risk of cardiovascular and respiratory problems.[12] Babies and young children, like older people, are also more likely to become unwell from hot weather because their bodies are less able to regulate temperature.[13] Other harms linked with heat exposure include preterm birth in pregnant women[14], worsening mental health (and suicide)[15], and increased risk of injury and accidents in workplaces.[16]

Social and economic determinants also contribute substantially to an increased risk of heat-related mortality and morbidity. Those living in isolation, in low socio-economic groups, those who are homeless or living in unsafe communities, and those living in regions with low access to urban green space are also more vulnerable to the effects of heat.[17] Moreover, the urban heat island effect - where temperatures increase in urban areas as a result of man-made structures and activities— is also linked with increases in the risk of illness and death for vulnerable residents in cities and built-up environments.[18]

How does overheating affect infrastructure

Hot weather's impact is not confined to people. It can also place a major strain on vital infrastructure many of us rely upon. High temperatures and prolonged heatwaves can place stress on various sectors, disrupting daily life, compromising operational efficiency, and even

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[12] Collaco, J. M et al. (2018), The relationship of lung function with ambient temperatures. PLoS One, Vol.13, no.1. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5773195/. Liu, J et al. (2022), Heat exposure and cardiovascular health outcomes: a systematic review and meta-analysis. The Lancet, Planetary Health, vol.6, no.6. Available at https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(22)00117-6/fulltext

[13] Atherton, W et al. (2005), A year's trauma admissions and the effect of the weather. Injury, vol.36, no.1. Available at https://www.injuryjournal.com/article/S0020-1383(03)00461-3/fulltext

[14] Chersich, M et al. (2020), Associations between high temperatures in pregnancy and risk of preterm birth, low birth weight and stillbirths: systematic review and meta-analysis in BMJ, vol.371. Available at https://www.bmj.com/content/371/bmj.m3811

[15] Thompson, R et al. (2018), Associations between high ambient temperatures and heat waves with mental health outcomes: a systematic review in Public Health, vol.161. Available at https://www.sciencedirect.com/science/article/abs/pii/S0033350618302130

[16] Binazzi, A et al. (2019), Evaluation of the impact of heat stress on the occurrence of occupational injuries: Meta-analysis of observational studies in American Journal of Industrial Medicine, vol.62, no.3. Available at https://onlinelibrary.wiley.com/doi/abs/10.1002/ajim.22946

[17] Campbell, S et al. (2018), Heatwave and health impact research: A global review in Health and Place, vol.53. Available at https://www.sciencedirect.com/science/article/pii/S1353829218301205

[18] Heaviside, C et al. (2016), Attribution of mortality to the urban heat island during heatwaves in the West Midlands, UK. Environmental Health, vol.68, no.7. Available at https://ehjournal.biomedcentral.com/articles/10.1186/s12940-016-0100-9

posing significant safety risks. These 'invisible risks' can be overlooked in discussions that focus solely on areas covered by public health.[19]

Infrastructure in the UK has typically been designed to retain heat. And as such, many buildings are not prepared to cope with the high temperatures that parts of the UK are increasingly experiencing. Extensive research by Loughborough University into overheating in UK homes in 2018, found that 3.6 million homes (15% of the total stock) had living rooms that overheated and 4.6 million (19%) had overheated bedrooms. It was also observed that the prevalence of overheating was greater in households living in social housing, on low incomes or with members above the state pension age.[20] Overheating is regularly documented in other buildings, but data on the full extent of this issue is somewhat patchy.[21]

All forms of transport are also impacted by high temperatures. Railway tracks are vulnerable to buckling, overhead cables sag, signals fail and maintenance is delayed. A study into the impact of one especially hot day in 2015 on the UK rail network, found that failure and impairment of assets, caused major disruptions, with all regions experiencing at least double their daily average delay minutes, costing an estimated £16 million to the national economy.[22] Local roads, which make up 98% of the UK's road network ranging from major 'A' roads to minor country lanes, are also considered to be especially exposed to rising temperatures.[23]

Hot weather can also cause problems for the UK energy system. Efforts to keep cool can cause a surge in energy demand, adding pressure to the power grid. High temperatures can also have a negative impact on energy generation, by reducing efficiency and capacity.[24] Interruption of power supplies is frequently highlighted as a source of cascade failure wherein one disruption in one infrastructure network can quickly cascade into other infrastructure

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[19] Brimicombe, C et al. (2021), Heatwaves: An invisible risk in UK policy and research in Environmental Science and Policy, vo.116. Available at https://www.sciencedirect.com/science/article/pii/S1462901120313782

[20] Lomas, K et al. (2021), Dwelling and household characteristics' influence on reported and measured summertime overheating: A glimpse of a mild climate in the 2050's in Building and Environment, vol.201. Available at https://www.sciencedirect.com/science/article/pii/S0360132321003905?via%3Dihub

[21] Climate Change Committee. (2022), Risks to health, wellbeing and productivity from overheating in buildings. Available at https://www.theccc.org.uk/publication/risks-to-health-wellbeing-and-productivity-from-overheating-in-buildings/

[22] Ferranti, E et al. (2017), The hottest July day on the railway network; insights and thoughts for the future in Meteorological Applications, vol.25, no.2. Available at https://rmets.onlinelibrary.wiley.com/doi/10.1002/met.1681

[23] Jaroszweski, D et al. (2021), Infrastructure in The Third UK Climate Change Risk Assessment Technical Report. Prepared for the Climate Change Committee. Available at https://www.ukclimaterisk.org/wp-content/uploads/2021/06/CCRA3-Chapter-4-FINAL.pdf

[24] Drax, (2017), What hot weather means for electricity. Available at https://www.drax.com/power-generation/hot-weather-means-electricity/

networks. For example, power supply issues can quickly impact communications and IT infrastructure.[25]

Overall, the impact/risk from heatwaves and hot weather is not confined to one sector but cuts across multiple sectors in both predictable and unpredictable ways. As the frequency and intensity of heatwaves continue to increase due to climate change, it will become more likely that the functionality of essential systems will be impacted.

[25] Jaroszweski, D, op cit, p18

NHS Overheating Data

According to the most recent UK climate risk assessment (CCRA3), extreme weather events, made worse and more frequent by climate change, cause significant disruption to health and social care services, especially through the effects of extreme heat on hospitals and other health and care infrastructure.

Following a commitment from NHS England to monitor and respond to extreme weather events, all NHS trusts have had to report annually on overheating occurrences (in clinical areas) since 2016/2017. This data is collected centrally via the Estates Return Information Collection (ERIC) which collects information from all NHS trusts relating to the costs of providing and maintaining the NHS Estate.[26]

Overheating incidents are defined as the number of occasions wherein an occupied ward or clinical area's daily maximum temperature exceeds 26°C, triggering a risk assessment to ensure the safety of (vulnerable) patients. Overheating incidents in non-clinical spaces are not included in the statistics, and therefore all recorded incidents, according to the ERIC data definitions, have by way of (at least) triggering a risk assessment, directly impacted (vulnerable) patients and staff.

According to the Heatwave Plan for England, the 26°C threshold is significant because it is at this temperature and above that some vulnerable groups are physiologically unable to cool themselves efficiently.[27] And that therefore hospitals should ensure temperatures do not exceed 26°C, especially in areas with high-risk patients. Other studies suggest that lower temperature thresholds can pose risks to human health and well-being.[28]

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[26] NHS Digital. (accessed 24 May 2023), Estates Returns Information Collection. Available at https://digital.nhs.uk/data-and-information/publications/statistical/estates-returns-information-collection

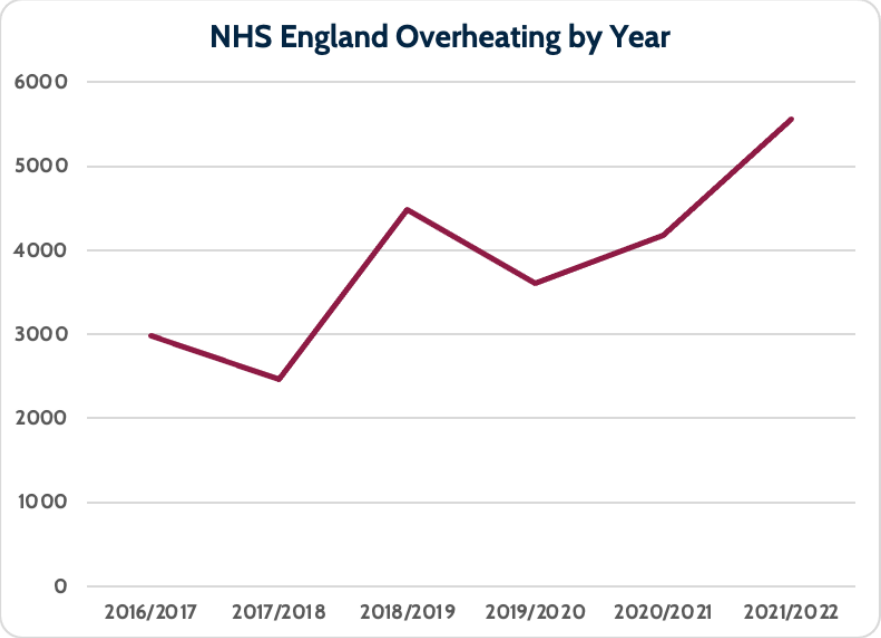
[27] NHS England. (2011) Heatwave Plan for England. Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/216193/dh_127235.pdf

[28] Malon, H et al. (2021), Future Changes to high impact weather in the UK in Climate Change, vol.166, no.50. Available at https://link.springer.com/article/10.1007/s10584-021-03100-5

ERIC data does not include overheating incidents in care homes, hospices and other settings for people with health vulnerabilities, which have been shown to also be significantly impacted by high temperatures and heatwaves.[29]

Data on overheating incidents

The most recent ERIC data reveals that in the year April 2021 to March 2022 there were 5,554 recorded overheating incidents across NHS England sites. This represents an almost doubling of recorded overheating incidents over the past five years - in 2016/2017 there were 2,980 recorded overheating incidents - and the greatest number of incidents since records began. It is possible that this could be down to better reporting by NHS Trusts. These figures do not include incidents from after March 2022, and therefore do not cover the period of unprecedented hot weather in June, July and August 2022. It is also important to note that overheating incidents will likely reflect the ability of some NHS sites to cope with warm temperatures as well as local weather. This could explain why incidents do not always track where in the country the temperatures are at their highest.

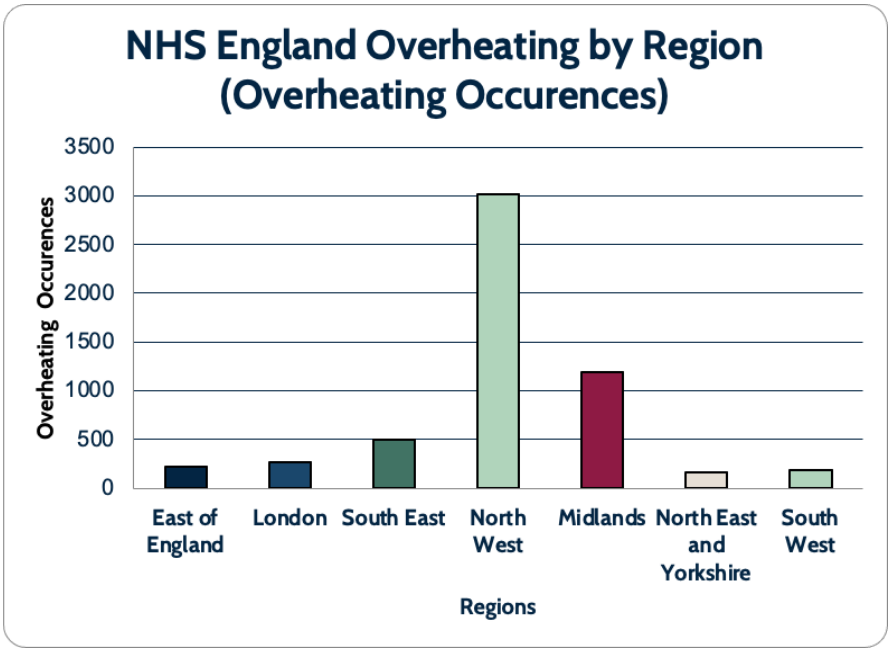


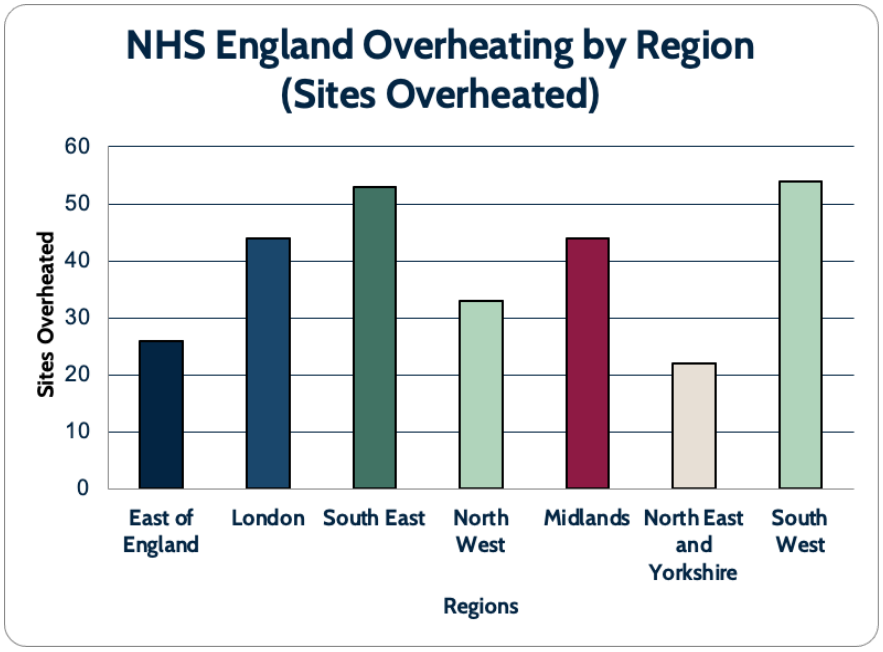
Source: Round Our Way analysis of ERIC data

[29] Gupta, R et al. (2017), Overheating in care settings: magnitude, causes, preparedness and remedies. Building Research and Information, vol.45, no.1-2. Available at https://doi.org/10.1080/09613218.2016.1227923

Data by region

The data reveals the top 10 NHS trusts with the most overheating incidents in 2021/2022. Wrightington, Wigan and Leigh NHS Foundation Trust in the North West and Sandwell and West Birmingham NHS hospital Trust in the Midlands are by far and away the worst hit Trusts, with Essex Partnership Hospital Trust in the East of England, South Tees Hospital Trust in the North East and Oxford University Trust in the South East also incurring substantial overheating incidents.





Source: Round Our Way Analysis of ERIC data

Top 10 NHS trusts impacted by overheating

*Numbers in brackets indicate sites impacted by overheating

Rank	NHS England Trusts	Overheating Occurrences
1	Wrightington, Wigan and Leigh NHS Foundation Trust (North West)	2829 (20)
2	Sandwell and West Birmingham NHS Hospital Trust (Midlands)	840 (8)
3	Essex Partnership University NHS Foundation Trust (East of England)	123 (11)
4	Nottingham University Hospital NHS Trust (Midlands)	114 (3)
5	South Tees Hospitals NHS Foundation Trust (North East)	108 (1)
6	Oxford University Hospitals NHS Foundation Trust (South East)	85 (4)
7	Barnet, Enfield and Haringey Mental Health NHS Trust (London)	80 (8)
8	Southern Health NHS Foundation Trust (South East)	78 (7)
9	Wirral University Teaching Hospital NHS Foundation Trust (North West)	68 (2)
10	The Princess Alexandra Hospital NHS Trust (East of England)	66 (1)

Source: Round Our Way analysis of ERIC data

Top 5 NHS Trusts in each region impacted by overheating

Rank	NHS England Trusts (South West)	Overheating Occurrences
1	University Hospitals Bristol and Weston NHS Foundation Trust	62 (4)
2	Cornwall Partnership NHS Foundation Trust	44 (10)
3	Torbay and Devon Health Care NHS Foundation Trust	17 (17)
4	Gloucestershire Hospitals NHS Foundation Trust	16 (3)
5	Northern Devon Healthcare NHS Trust	10 (2)

Rank	NHS England Trusts (South East)	Overheating Occurrences
1	Oxford University Hospitals NHS Foundation Trust	85 (4)
2	Southern Health NHS Foundation Trust	78 (7)
3	East Sussex Healthcare NHS Trusts	54 (4)
4	University Hospitals Sussex NHS Foundation Trust	44 (5)
5	Buckinghamshire Healthcare NHS Trust	36 (3)

Rank	NHS England Trusts (North West)	Overheating Occurrences
1	Wrightington, Wigan and Leigh NHS Foundation Trust	2829 (20)
2	Wirral University Teaching Hospital NHS Foundation Trust	68 (2)
3	Northern Care Alliance NHS Foundation Trust	27 (4)
4	Southport and Ormskirk Hospital NHS Trust	21 (2)
5	Bridgewater Community Healthcare NHS Trust	5 (1)

Rank	NHS England Trusts (North East)	Overheating Occurrences
1	South Tees Hospitals NHS Foundation Trust	108 (1)
2	South West Yorkshire Partnership NHS Foundation Trust	11 (3)
3	Doncaster and Bassetlaw Teaching Hospitals NHS Foundation Trust	9 (3)
4	South Tyneside and Sunderland NHS Foundation Trust	8 (3)
5	Harrogate and District NHS Foundation Trust	8 (1)

Rank	NHS England Trusts (London)	Overheating Occurrences
1	Barnet, Enfield and Haringey Mental Health NHS Trust	80 (8)
2	King's College Hospital NHS Foundation Trust	41 (4)
3	East London NHS Foundation Trust	27 (9)
4	West London NHS Trust	23 (2)
5	Homerton University Hospital NHS Foundation Trust	22 (4)

Rank	NHS England Trusts (Midlands)	Overheating Occurrences
1	Sandwell and West Birmingham NHS Hospital Trust	840 (8)
2	Nottingham University Hospital NHS Trust	114 (3)
3	University Hospital of North Midlands NHS Trust	54(2)
4	Shrewsbury and Telford Hospital NHS Trust	43 (3)
5	Birmingham Women's and Children's NHS Foundation Trust	32(2)
5*	Walsall Healthcare NHS Trust	32 (1)

Rank	NHS England Trusts (East of England)	Overheating Occurrences
1	Essex Partnership University NHS Foundation Trust	123 (11)
2	The Princess Alexandra Hospital NHS Trust	66 (1)
3	Royal Papworth Hospital NHS Foundation Trust	7 (1)
4	Mid and South Essex NHS Foundation Trust	5 (5)
5	The Queen Elizabeth Hospital King's Lynn NHS Foundation Trust	5 (1)

Source: Round Our Way analysis of ERIC data

The impact of overheating on the NHS

Multiple observational studies into hot weather and individual wards within hospitals have revealed significant functionality problems.

Reported impacts of heatwaves include distress of patients, failure of essential equipment such as refrigeration systems, disruption of IT services and laboratory services, discomfort of staff (occupational health issue) and degradation and loss of medicine.[30]

A recent study into the 2022 summer heatwave found that a fifth of UK hospitals were forced to cancel operations (elective surgery) between 16-19 July. Factors contributing to heatwave-related cancellations included staff shortages (35.8% of respondents), unsafe theatre environments (30.3%), and bed shortages (22.1%).[31]

Hospitals must provide respite from the summer heat for the most vulnerable people at precisely the times of the year when it is most difficult to do so and when, according to the Office for National Statistics (ONS), demand surges. Analysis of the four warmest months of

[30] Kovats, S. and Brisley, R. (2021), Health, communities and the built environment in *The Third UK Climate Change Risk Assessment Technical Report.* Prepared for the Climate Change Committee, London, p204. Available at https://www.ukclimaterisk.org/wp-content/uploads/2021/06/CCRA3-Chapter-5-FINAL.pdf

[31] Bhangu, A et al (2023). Elective surgical services need to start planning for summer pressures in British Journal of Surgery, vol.110, no 4. Available at https://academic.oup.com/bjs/article/110/4/508/7081139?login=false

the year (between 2010 and 2018) found an extra 1,780 hospital admissions annually from conditions associated with warmer days.[32] Moreover other studies have shown increases in GP activity and emergency department use for some conditions likely to be associated with heatwaves, and in ambulance call-out rates.[33]

In addition to patient distress, high temperatures also pose an occupational health risk to NHS staff. Prolonged exposure to extreme temperatures has been shown to decrease cognitive ability, and even under milder conditions can impair performance. Peak productivity was found to occur between 21 and 22°C, with cognitive performance decreasing above 24°C.[34] Other anecdotal evidence suggests a significant impact on wellbeing, especially at more extreme temperatures, with staff reporting feeling uncomfortable, tired, unable to cope, less efficient and stressed.[35]

Knock on effects of overheating to other critical infrastructure may also undermine the delivery of health and care services.

[32] Office for National Statistics. (accessed 24 May 2023), Climate-related mortality and hospital admissions, England and Wales: 2001 to 2020. Available at https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/climaterelatedmortalityandhospitaladmissionsenglandandwales/2001to2020
[33] Smith, S et al. (2016), Estimating the burden of heat illness in England during the 2013 summer heatwave using syndromic surveillance in Epidemiol Community Health, vol.70, no.5. Available at https://jech.bmj.com/content/70/5/459
[34] Seppanen, O et al. (2006), Ventilation and performance in office work. Indoor Air, vol.16, no.1. Available at https://escholarship.org/content/qt2374990t/qt2374990t.pdf
[35] Brooks, K et al. (2023), Heatwaves, hospitals and health system resilience in England: a qualitative assessment of frontline perspectives from the hot summer of 2019 in BMJ, vol.13. Available at https://bmjopen.bmj.com/content/13/3/e068298

Overheating in the Future

As temperatures increase, it is very likely there will be an increase in the frequency and intensity of heatwave events and extreme high temperatures. This, in turn, will likely mean more overheating incidents at NHS sites (and other health and social care facilities). Already, it has been estimated that 90% of UK hospital wards are currently at risk from overheating due to the type and design of buildings.[36]

According to the Climate Change Committee though there is 'a major adaptation gap in the health and social care system'.[37] While there has been some pilot work on hospital design and retrofitting, economic drivers are not leading to the uptake of such designs and in some instances new buildings are still building-in overheating risks.[38] To compensate, typically mechanical cooling and air conditioning are used to reduce the risk of overheating but this conflicts with the NHS Carbon Reduction Strategy.

No uniform solution to overheating at NHS sites exists due to the sheer variety and number of healthcare buildings, each of which have unique needs and building management plans. A third of the NHS estate was built before 1965, and 14% was built before the foundation of the NHS in 1948. Despite this though updated heatwave plans, more evidence on how hot weather impacts the delivery of care and patient safety and awareness around practical steps to mitigate overheating can, and has, improved healthcare response to extreme hot weather.

Adapting and anticipating the adverse effects of climate change and taking action to prevent or minimise the damage it causes is entirely necessary. The impact, however, that overheating has on both patients and hardworking staff in the NHS will be made much worse, and more difficult to deal with if we do not reduce emissions and limit warming.

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[36] Short, A. (2017), *The Recovery of Natural Environments: Air, Comfort and Climate*. Taylor and Francis, p404

[37] Climate Change Committee. (2019), Heat and Preventable Deaths in the Health and Social care System. Available at https://www.theccc.org.uk/wp-content/uploads/2019/07/Outcomes-Heat-preventable-deaths-case-study.pdf

[38] Lomas, K et al. (2018), Hospital wards and modular construction: Summertime overheating and energy efficiency in Building and Environment, vol.141. Available at https://www.sciencedirect.com/science/article/pii/S0360132318303081?via%3Dihub