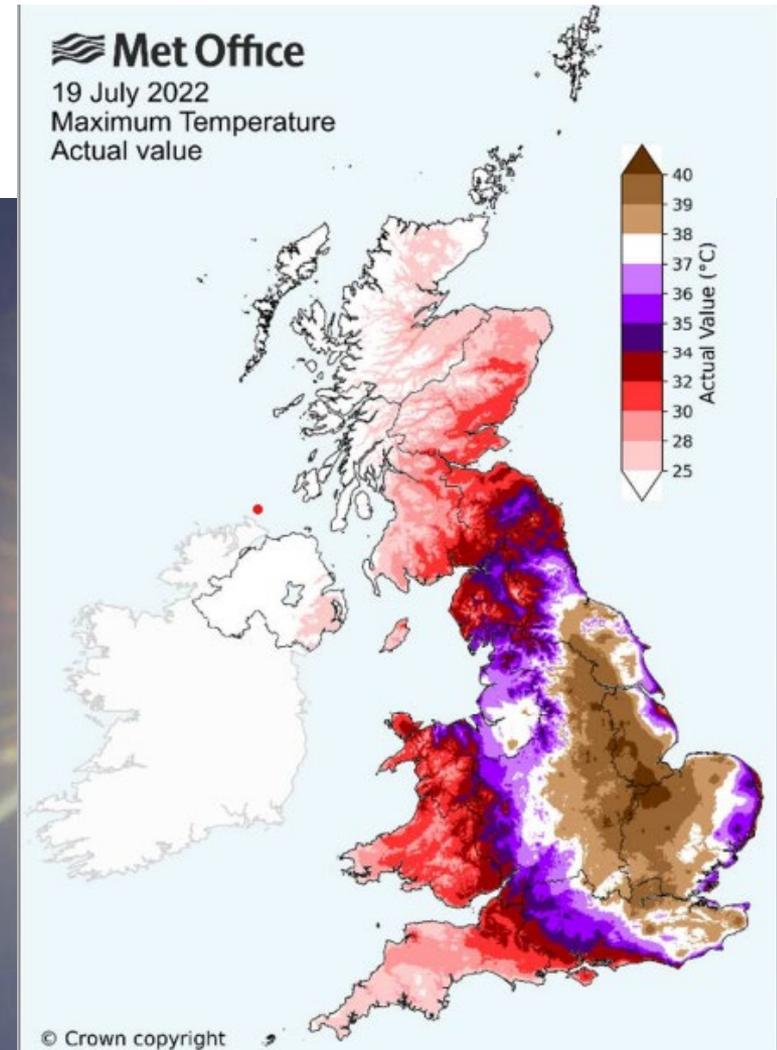




Heat as threat: caring and ageing in a rapidly warming climate

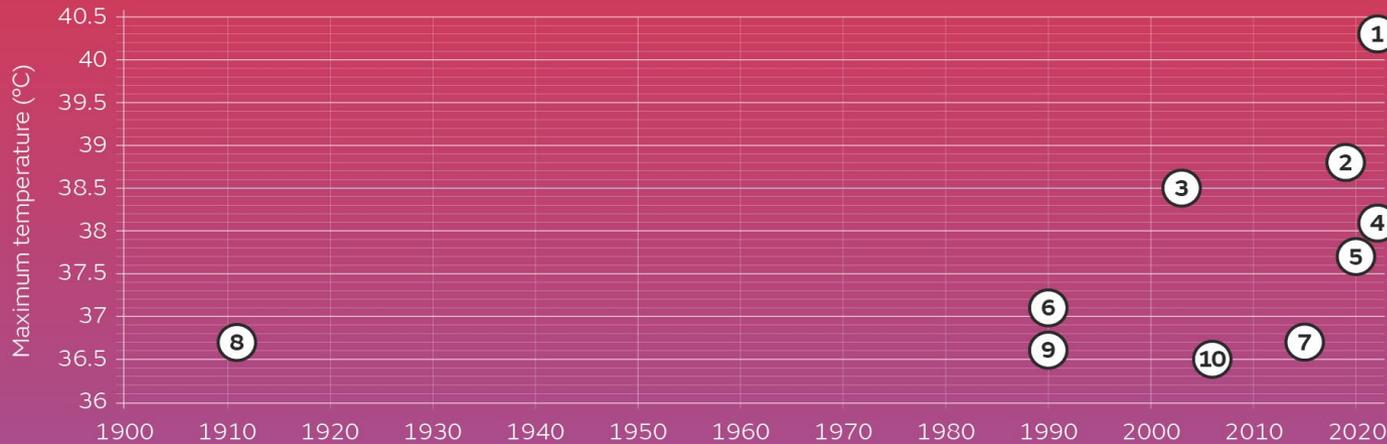
Professor Gordon Walker
Lancaster Environment Centre
Lancaster University

U.K. Heat Wave: Britain Sets New Record on a Second Day of Scorching Temperatures



Climate change made 2022's UK heatwave 'at least 10 times more likely'

Met Office Top ten hottest UK days on record



1. 19 July 2022, Coningsby, Lincolnshire - **40.3 °C***
2. 25 July 2019, Cambridge Botanic Gardens - **38.7 °C**
3. 10 Aug 2003, Faversham, Kent - **38.5 °C**
4. 18 July 2022, Santon Downham - **38.1 °C***
5. 31 July 2020, Heathrow, London - **37.8 °C**
6. 03 Aug 1990, Cheltenham, Gloucestershire - **37.1 °C**
7. 01 Jul 2015, Heathrow, London - **36.7 °C**
8. 09 Aug 1911, Raunds Northamptonshire - **36.7 °C**
9. 02 Aug 1990, Worcester, Worcestershire - **36.6 °C**
10. 19 Jul 2006, Wisley, Surrey - **36.5 °C**

* Provisional data

“Temperature records tend to get broken by modest amounts and by just a few stations, but the recent heat broke the national record by 1.6°C and across an extensive area of the country ... Even when you factor in the temperatures seen in summer 1976, they didn’t reach anywhere near the levels seen this week, although that was a much more prolonged spell of hot and dry weather.”

Level	
0	Year-round planning All year
1	Heatwave and summer preparedness and action programme 1 June to 15 September
2	Heatwave is forecast – Alert and readiness 60% or greater risk of heatwave in the next 2 to 3 days
3	Heatwave action Temperature reached in one or more Met Office National Severe Weather Warning Service regions
4	Major incident – Emergency response Central Government will declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health.

UK braces for record temperature as first ever red heat warning comes into effect

Network Rail says to avoid trains unless absolutely necessary, with much of country covered by extreme heat alert





UK Health
Security
Agency



Heatwave plan for England

Protecting health and reducing harm from severe heat and heatwaves





Local
Government
Association



Met Office

TWO REASONS WHY HEAT IS A COMPLICATED FORM OF THREAT

- **What constitutes a 'heatwave' is defined in relative terms**
- **Not everyone is equally vulnerable to the effects of heat**

What constitutes a 'heatwave' is defined in relative terms

A heatwave is an extended period of hot weather relative to the expected conditions of the area at that time of year.

A UK heatwave threshold is met when a location records a period of at least three consecutive days with daily maximum temperatures meeting or exceeding the relevant heatwave temperature threshold.

UK Met Office

Maximum temperatures (°C)		
NSWWS Region	Day	Night
London	32	18
South East	31	16
South West	30	15
Eastern	30	15
West Midlands	30	15
East Midlands	30	15
North West	30	15
Yorkshire and Humber	29	15
North East	28	15

Why relative not absolute?

- bodies adapt to coping with high temperatures (and humidity levels) that are normal in a place over time; 'acclimatisation' to a certain degree
- societies in many different ways reflect the climates that are normal for them – culture therefore matters

Not everyone is equally vulnerable to the effects of heat

Annual Monitoring of Excess Deaths during Heatwaves in England

Analysis for 2020

Across the 3 heatwave episodes in 2020, the total cumulative all-cause excess mortality was estimated to be **2,556** .. with 311 excess deaths observed in the **0-64 years group** and 2,244 excess deaths observed in the **65+ years group** (UKHSA)

Analysis for 2021

Across the 2 episodes in 2021, the total cumulative all-cause excess mortality was estimated to be **1,634**, with 1,470 excess deaths observed in the **65+ years group** (UKHSA)

Analysis for 2022

Deaths in England's July heatwave up 7% on rest of the month

ONS says deaths peaked on day of record 40C temperatures, and Covid deaths were also higher on hot days



Not everyone is equally vulnerable to the effects of heat

Why are deaths concentrated in older age groups? (Its not heatstroke .. or jumping in cold rivers/lakes)

- Automatic bodily 'thermoregulation' not as effective in older bodies
- Heat accumulation places stress on heart & breathing, exacerbates pre-existing conditions e.g. cardiovascular and pulmonary disease
- Some medications interrupt/complicate working of thermoregulation
- Dementia and mental health conditions can limit awareness of need for hydration and everyday adaptation to hotter weather

'Excess death' figures reveal the 'hidden' impact of heatwaves and take time to collect and report

Not everyone is equally vulnerable to the effects of heat

But WHO within older age groups is most vulnerable ALSO depends on:

- Housing conditions – overheating, ventilation etc..
- Social networks and social isolation
- Neighbourhood characteristics (access to cooler spaces, crime and safety)
- Responsiveness/quality of **systems of care**



Care Provision fit for a Future Climate

14-month study (2016) funded by the Joseph Rowntree Foundation, which:

- Examined how far **existing care homes and other care provision** in the UK are **fit for a warming climate**, and
- Considered the **preparedness** of the care sector (both residential and extra care) with a focus on **overheating**.

Location of death during 2003 heatwave

	Where	% increase above expected
France Fouillet et al (2006)	Home	70%
	Institutions / retirement homes	90%
	Public hospitals	50%
	Private hospitals and clinics	20%
	Street	10%
<hr/>		
England and Wales National Statistics (2006)	Home	33%
	Public Hospitals	36%
	Hospice	0.2%
	Nursing Home	42%
	Residential Home	29%

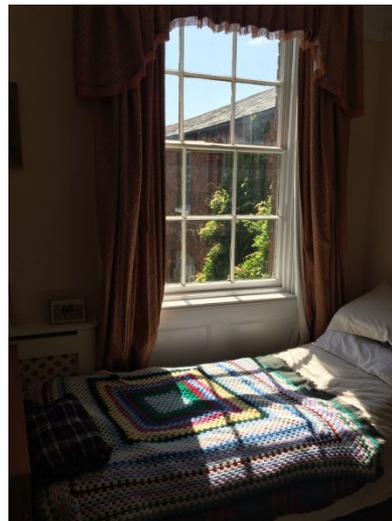
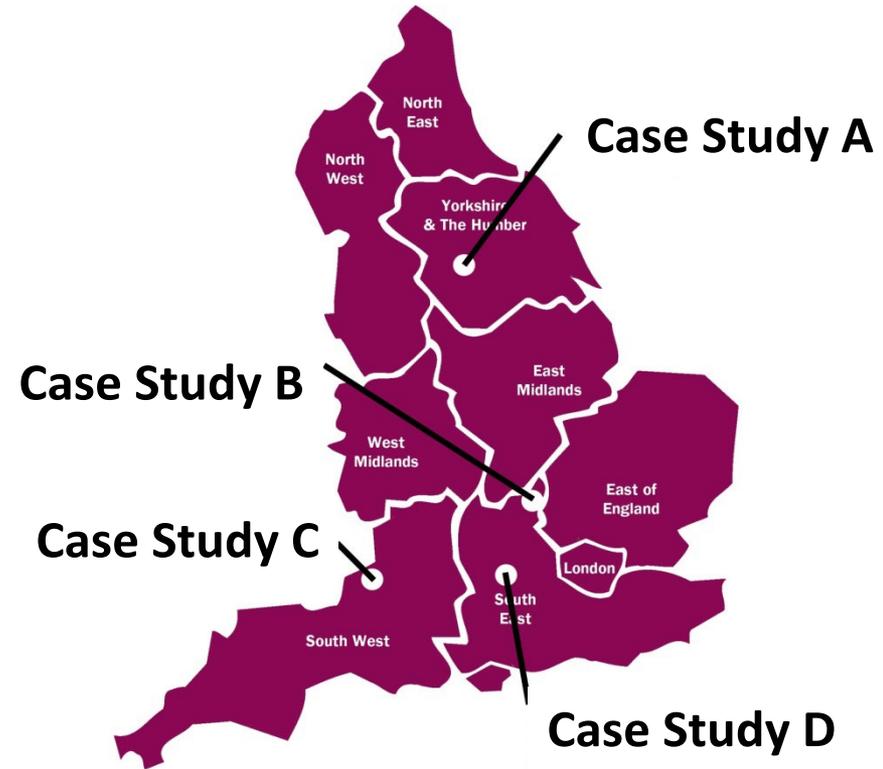
Case study schemes

Care homes:

- **Case Study A** (42 beds / 2005)
- **Case Study B** (23 beds / mid-late 19th c.)

Extra-care schemes:

- **Case Study C** (50 flats / 2006)
- **Case Study D** (60 flats / 2012)



Mixed-methods approach

- **Building surveys** to identify design features that can enable or prevent occupants and their carers to control their thermal environment
- **Climate modelling** using future weather data (2030s, 2050s and 2080s) in dynamic thermal simulation
- **Monitoring of environmental conditions** in the four case studies (June 2015 – September 2015)
- **Qualitative Interviews** with **Scheme managers** (5), **Carers** (7), **Maintenance staff** (2) and **Residents** (10) – to assess how building design, management and occupant practices address overheating risks and vulnerabilities (September 2015) + **reanalysis** of interviews from previous project

A culture of 'keeping older occupants warm'

- Prevalent perception, from designers to front-line staff, that older people 'feel the cold'. Provision of warmth therefore associated with good care.
- Cold seen to represent a bigger threat to older occupants' health – there is less recognition that heat can also present a significant health risk.
- Residents will typically complain about the cold, but not the heat
 - BUT drowsiness, lethargy issues
 - cultural norms, recurrent phrases, a way of getting attention?
- Heatwaves regarded as rare in the UK.



“The biggest killer in the elderly is the cold, so I’d rather they were hot” (Manager C)

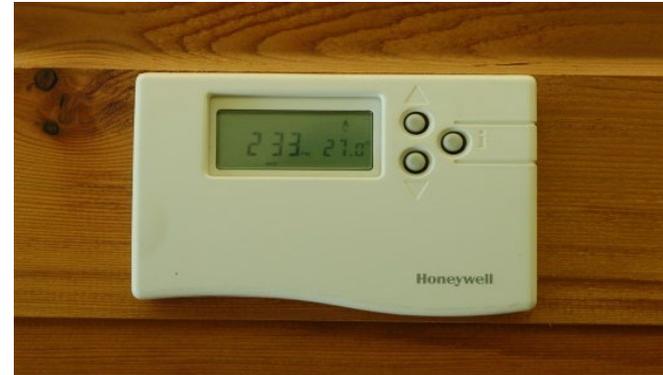
Limited heatwave planning

- **Managers** aware of the Public Health England Heatwave Plan – other staff **not**
- Aspects of the plan implemented on **'ad-hoc' basis**: checking occupants' clothing, "pushing fluids," providing electric fans.
- **Ingrained practices** of staff and residents don't shift during heat waves: meals, clothes, washing.
- Natural ventilation limited by **window restrictors**, and concerns about **draughts, security and insects**.



Lack of effective heat management due to design and management issues

- **Confusion** among staff and occupants about **how** to operate heating, and **who** is responsible.
- **Heating system** was **in operation 24/7** including during the **summer months** in all of the case studies
- Reports of **heating being on when windows are open**.
- **Lack of investment** in features that would enable better heat management, particularly with regard to **ventilation** and **solar shading**.



Thermostat in corridor set to 27°C in summer in Case Study C.



Recommendations

“The aim of becoming more resilient to overheating and heatwave risks in the care sector should be to ensure that no additional (‘excess’) mortality (death) or morbidity (illness) occurs during future heatwaves.

Given that vulnerable residents are within settings that *should* be providing care and therefore protection against thermal risks – as they already do against cold weather conditions - this is a reasonable aim, and both building design and ongoing management and care practices need to become better focused towards this goal”

<https://www.jrf.org.uk/report/care-provision-fit-future-climate>



Care provision fit for a future climate

Rajat Gupta, Gordon Walker, Alan Lewis, Laura Barnfield, Matt Gregg and Louis Neven

12th May 2016 | Related topics Government

How far are existing care homes and other care provision facilities fit for a future climate?

- **There is a difference between pleasant summertime sunshine, and heatwave periods that can have serious impacts on health.** The transition into a heatwave period necessarily entails ‘non-normal’ conditions and responses in which routines and priorities should be disrupted.
- Vulnerability to heat is generally focused on older people, specifically those with particular health conditions. This **differential susceptibility needs to be understood**, identified amongst residents, prepared for and responded to.
- Whilst keeping older people warm is important for their health, **the general culture of seeing the cold as dangerous, and warmth as good, can become a problem** if it dominates over understanding the health risks of heat
- Whilst significant heatwaves have been rare to–date in the UK, this is expected to change .. therefore **what is understood as ‘normal’ is not a good guide to what may come in the future.** Being prepared for that different future is important, just as is being prepared for the growth in the older population over coming decades.

National policymakers

Recommendation	Key Stakeholders
Develop more detailed national guidance on monitoring and minimising overheating risk in the care sector	DoH, PHE with others
<p>The PHE Heatwave plan guidance should be strengthened and added to in a number of ways:</p> <ul style="list-style-type: none"> • Recommending at level 0 the development of a local site-specific heatwave plan, which is then embedded into management practices and staff induction and training. Provide guidance on training required. • Adding a first key step (at level 2) that all heating systems are completely turned off, so that the amount of heat being added internally is minimized. This will need to include being clear about how this is done and whose responsibility it is to switch off the system. • Considering whether the recommendations on the creation of “cool rooms” are likely to be feasible in practice for certain configurations of care/extra-care homes. Further discussion should be had in terms of how to provide ‘cool areas’ in a practical and feasible way. • Include guidance on an overheating detection protocol using smart sensors and based on harmonised overheating thresholds; preferably with stepped warnings relating to thermal comfort as well as health-related temperatures. 	DoH, PHE with others
Develop and implement an overheating detection protocol for raising awareness and early identification of the risk of overheating using smart sensors and surveys during summer months in buildings with vulnerable occupants and promote this in the Heatwave Plan.	PHE, DoH; CQC; other governmental bodies working in the care sector



Department
of Health &
Social Care

NHS England



UK Health
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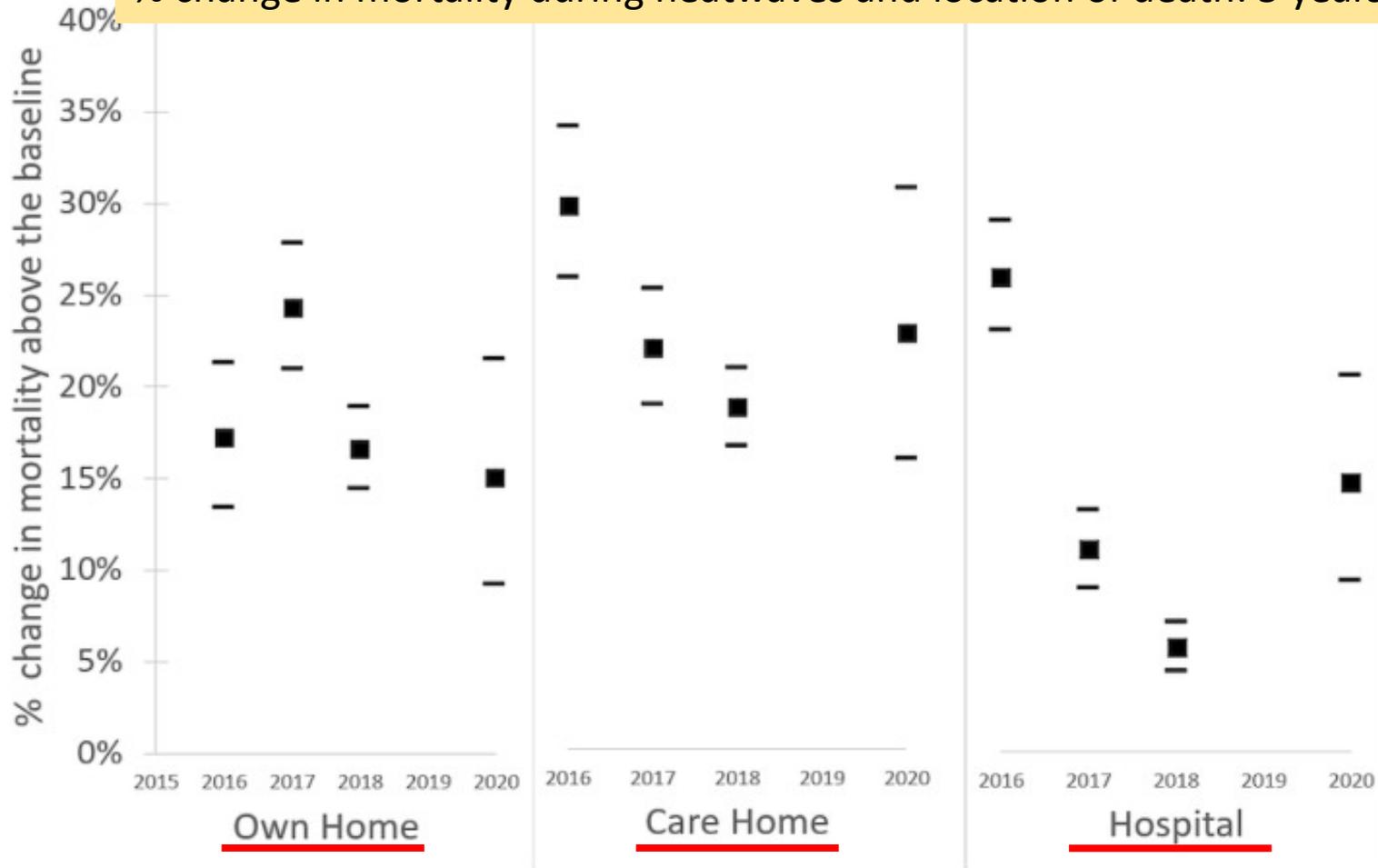
Guidance

Supporting vulnerable people before and during a heatwave: for care home managers and staff

Updated 28 July 2022

<https://www.gov.uk/government/publications/heatwave-plan-for-england/supporting-vulnerable-people-before-and-during-a-heatwave-for-care-home-managers-and-staff>

% change in mortality during heatwaves and location of death: 5 years of data



Black squares represent the percentage change in mortality above the baseline occurring at home, in care homes, and in hospitals during heatwave days compared to non-heatwave days for the years 2016, 2017, 2018, and 2020. Black dashes represent the calculated 95% confidence interval. (Source: Thompson et al 2022)

Final Points

- Extreme heat is becoming a real threat that needs to be actively managed in the UK
- The July 2022 experience will be repeated and will likely become yet more extreme
- There is much that CAN be done to enable better resilience and responsiveness to heat risks and to the vulnerabilities of older people
- The care sector has a *crucial* role to play ... but has to be much better enabled to perform this role