

Heatwave Briefing

November 2022 v2

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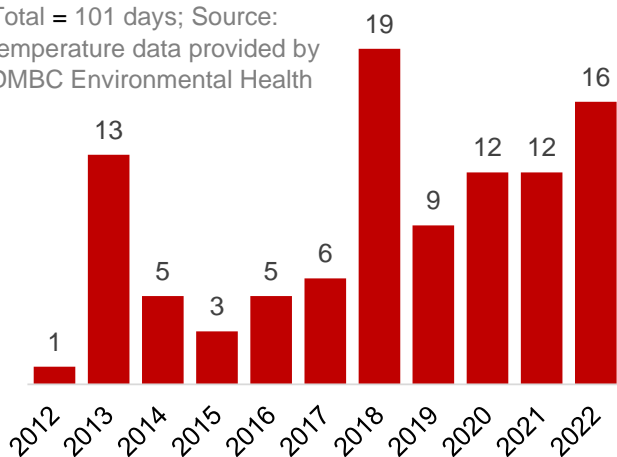
Deaths and illness associated with unusually hot weather in the UK are a recognised effect of climate change: periods of extreme heat have already coincided with some of the largest peaks in death rates in Dudley. For the last few years, we have monitored the impact of high temperatures on excess mortality¹ among residents of the Borough.

Heatwave days

Our study has focussed on the health impact of 'heatwave days'². The annual frequency of these days in Dudley has shown a rising trend over the last decade. Indeed, two-thirds of all the heatwave days in the last decade have been in the last five years.

Count of Heatwave Days in Dudley

Total = 101 days; Source: temperature data provided by DMBC Environmental Health



We have also seen the spreading of heatwave days over a longer annual season: in the first

¹ The phrases 'excess mortality, or 'excess deaths' refer to a rate of death higher than the average in previous years.

² A heatwave day in this context is defined as any day for which either (a) the observed temperature in Dudley exceeded 24.5°C for more than six consecutive hours, or (b) the two previous days met the condition in (a).

five years, more than 70% were in the month of July. But in the last five years half have been in June, August, or September.

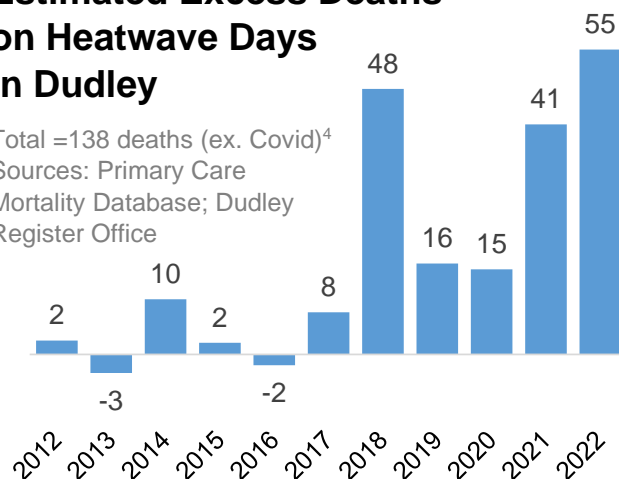
Heatwave episodes, when several heatwave days occur together, have become longer. In the last decade, of the eleven heatwave episodes more than two days, eight of have been in the last five years. Not previously seen week-long heatwaves have occurred in both of the last two years, the most recent in the context of one of the hottest summers recorded in England³.

Excess deaths

Mirroring these trends, excess deaths on heatwave days have also shown growing annual totals, with high numbers in 2018 and in the last two summers (2021 and 2022).

Estimated Excess Deaths on Heatwave Days in Dudley

Total = 138 deaths (ex. Covid)⁴
Sources: Primary Care Mortality Database; Dudley Register Office



This summer (2022) also produced the largest number of excess deaths recorded in a single heatwave episode.

Specifically, August 2022 saw seven consecutive days when the temperature exceeded 24.5° for more than six hours⁵ (only the second time we had recorded a heatwave

³ <https://www.metoffice.gov.uk/about-us/press-office/news/weather-and-climate/2022/joint-hottest-summer-on-record-for-england>

⁴ Negative values in 2013 and 2016 indicate that, on heatwave days there were fewer deaths than the five-year average.

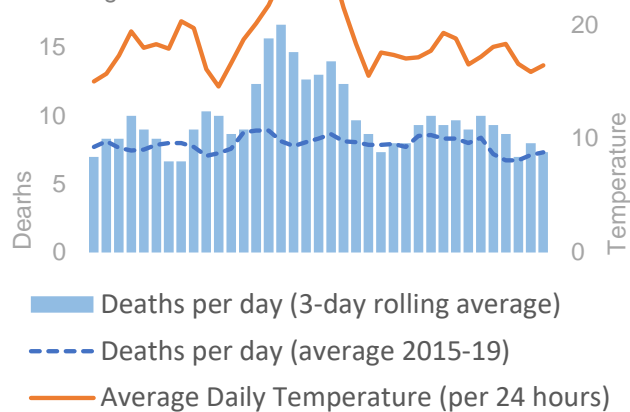
⁵ 24.5°C is the temperature 'at which any excess deaths may become apparent' (Heatwave Plan for England).

of that length). Even if we remove deaths of people who died with Covid from our calculations, there were an estimated 38 excess deaths during the episode – more than in any other we have recorded in the Borough.

The Heatwave in August 2022

Deaths registered in Dudley Borough, by date of death (three-day running average) compared to average temperatures, 26 July to 31 August 2022.

Sources: Dudley Register Office; Dudley Environmental Health & Trading Standards



Who is at Risk?

Even though deaths often appear to increase when temperatures are high, we cannot say for certain that excess deaths on heatwave days have resulted from the heat. But the causes of death recorded indicate that the deaths may be heat-related – for example respiratory conditions and causes related to dehydration have been common.

Heart problems can also be particularly pronounced – recent information published for England, for example, showed that an irregular heartbeat (cardiac arrhythmia) was the most increased cause of death during heatwaves in 2022⁶

Excess deaths during heatwaves are caused by both the high temperatures themselves as well as our society’s ability to respond to the

⁶ Excess mortality during heat-periods: 1 June to 31 August 2022. Office for National Statistics. <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/excessmortalityduringheatperiods/englandandwales1juneto31august2022>

⁷ For example, two books published by University of Chicago Press: Eric Klinenberg’s book ‘Heat Wave: A Social Autopsy

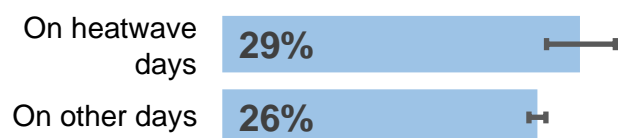
challenge they represent. For example, we know from studies elsewhere that people who live alone, or those who lack social support from family or friends are particularly at risk⁷.

We also know that, on heatwave days, people are more likely to die at home (i.e., in their private residence, rather than in a hospital for example) than on other days. This suggests that many are not aware of a problem early enough to obtain help from emergency healthcare services.

Lastly, people who live in major urban areas such as Birmingham and the Black Country may be more susceptible to higher rates of heatwave mortality than in more rural areas⁸.

Proportion of Deaths at Home

Dudley Residents, 2012-2022



The Future

Heatwaves will be more common in Dudley in the future. On current trends⁹, by 2030 we can expect Dudley to be experiencing the equivalent of more than three weeks of heatwave days every summer, and an annual total of more than 80 excess deaths per year corresponding to these heatwaves.

For advice on looking after yourself and others during heatwaves please visit

<https://www.dudley.gov.uk/residents/care-and-health/adult-health-social-care/healthy-lifestyles/heat-wave-advice/>

of Disaster’ from 2002; and Richard Keller’s book ‘Fatal isolation’ from 2015

⁸ This study published in the Lancet in 2022 supports the view that residents of major conurbations may be more at risk <https://www.thelancet.com/action/showPdf?pii=S2542-5196%2822%2900138-3>.

⁹ Based on linear extrapolations of existing Dudley data.