



Public Health
England

Protecting and improving the nation's health

Setting operational thresholds for Heat Early Warning Systems Lecture 2 – Data considerations

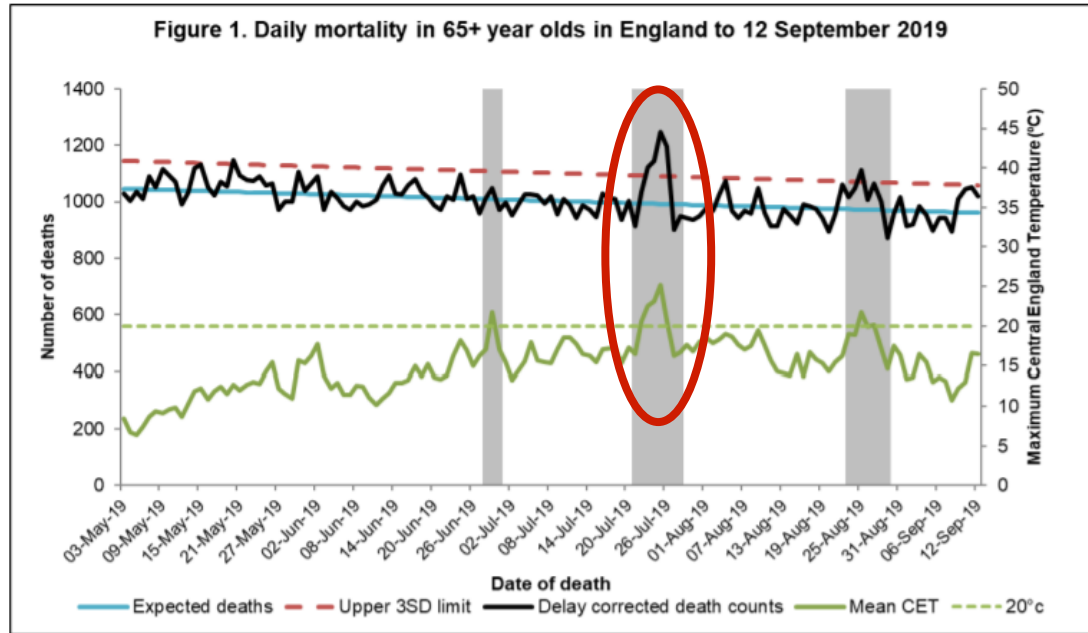
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June 02, 2020 – GHHIN Masterclass series

Overview

- Understanding temperature and health impact relationships
- Impacts and data availability
 - Mortality
 - Morbidity
 - External factors & subjective impacts
- Exposure metrics
- Spatial resolution

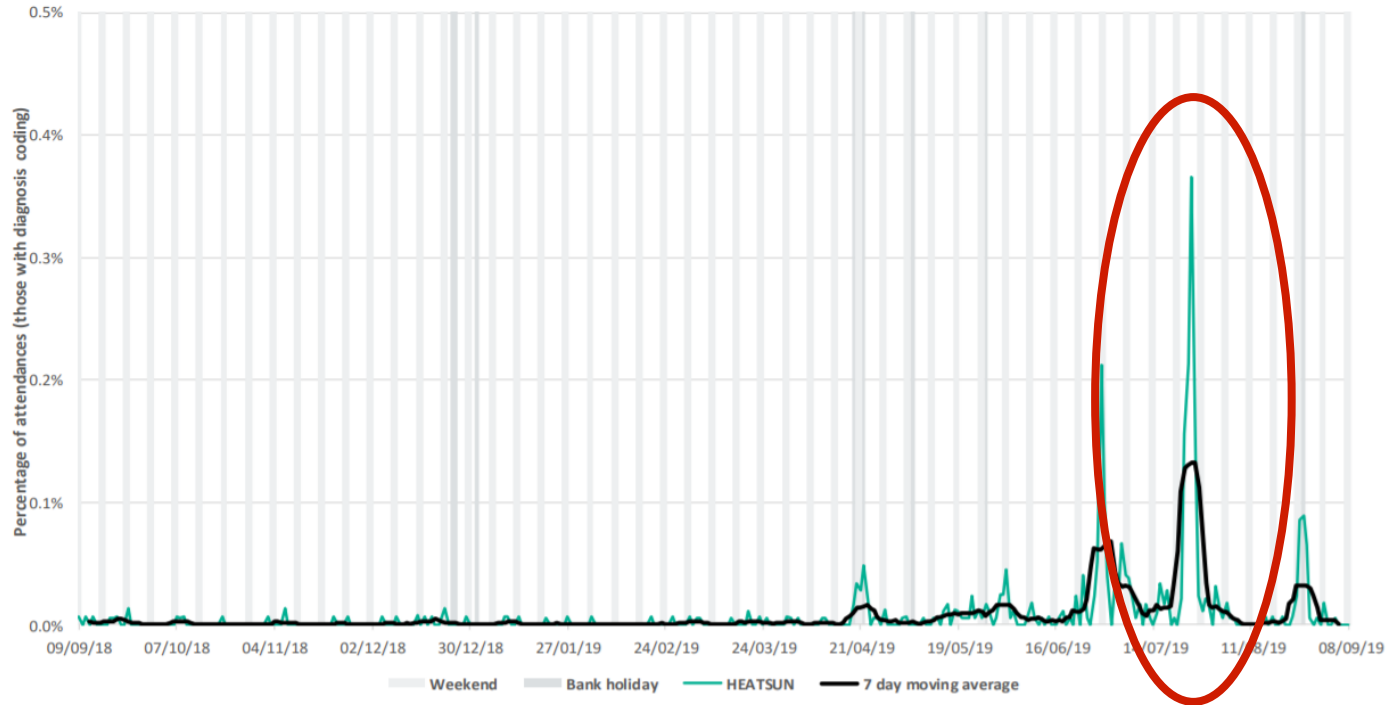
Heatwave mortality Summer 2019 - England



*heatwave days are highlighted in grey

Source: Public Health England, Heatwave Mortality Surveillance report 2019

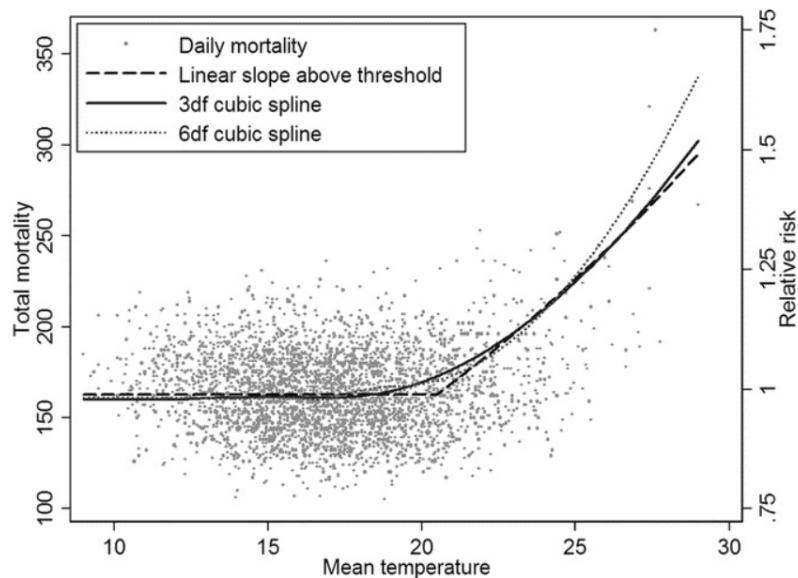
Emergency admissions – England 2019



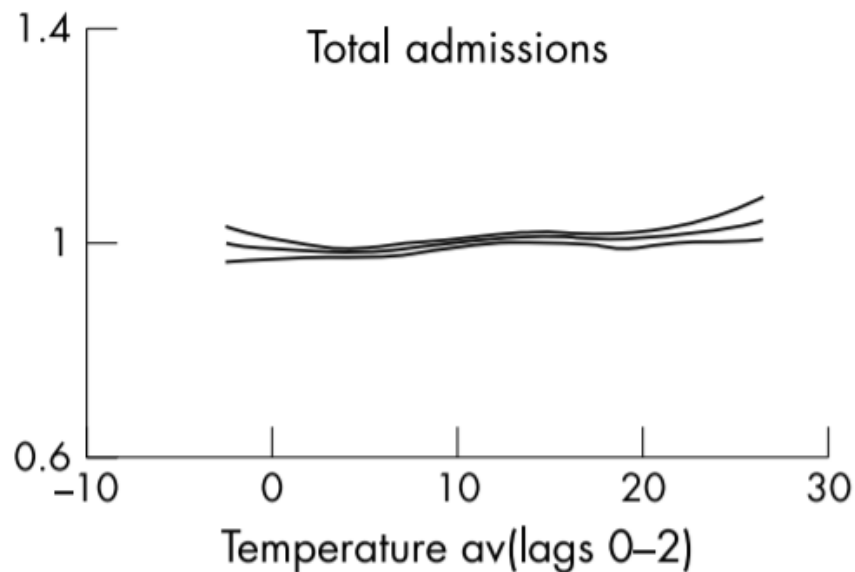
Source: Public Health England, Emergency department syndromic surveillance system

Temperature Mortality/morbidity relationship

Mortality



Morbidity



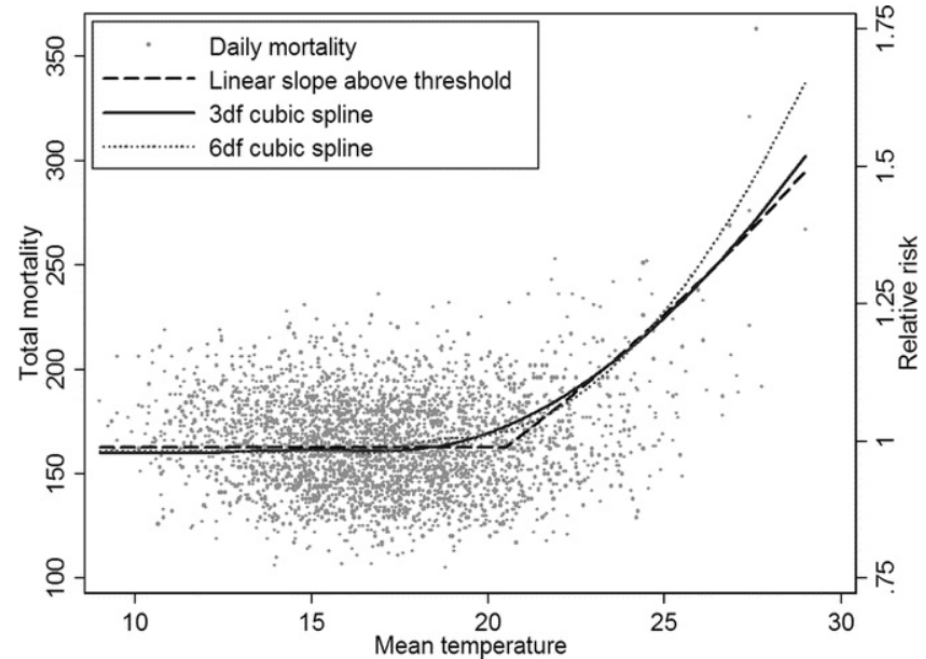
Source: Impact of High Temperatures on Mortality: Is There an Added Heat Wave Effect?, Hajat et al, 2006

Source: Contrasting patterns of mortality and hospital admissions during hot weather and heat waves in Greater London, UK, Kovats et al, 2000

Impact data for consideration - mortality

What data is available, and how useful will it be?

- Linear or non-linear temperature mortality relationships
- Night time temperatures
- Age adjusted
- Seasonal thresholds

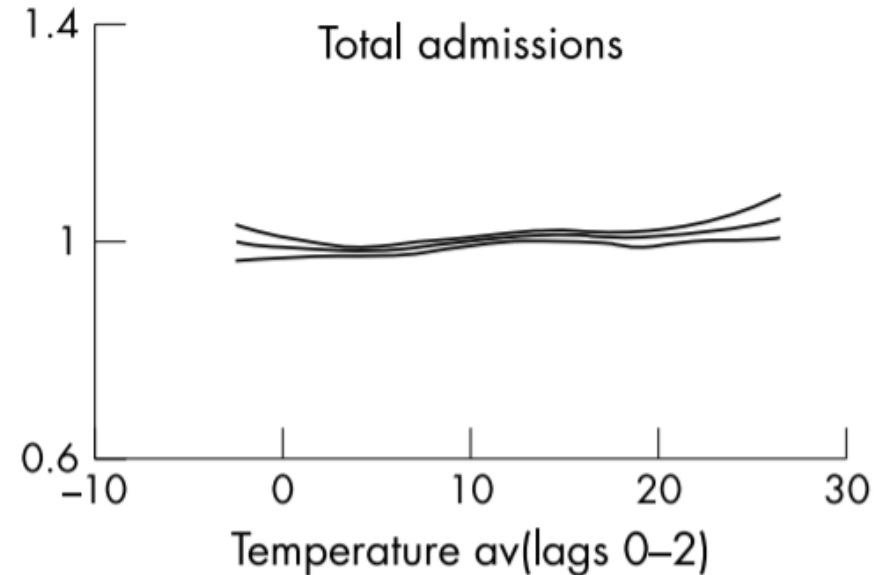


Source: Impact of High Temperatures on Mortality: Is There an Added Heat Wave Effect?, Hajat et al, 2006

Impact data for consideration - morbidity

What data is available, and how useful will it be?

- Emergency admissions
- Primary health care usage
- Ambulance call out
- Mental health services use
- Other data sets available?



Source: Contrasting patterns of mortality and hospital admissions during hot weather and heat waves in Greater London, UK, Kovats et al, 2000

Impact data for consideration – external/ subjective

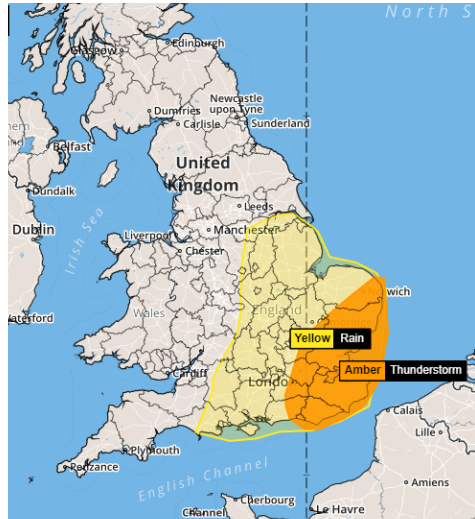
- Time of year/season?
- Episode length
- Other met factors (e.g. blocking/inversion systems etc)
- Concurrent hazards (e.g. AQ, water shortages, wild fires, flooding etc)
- % geographic area breaching thresholds or affected
- Public events
- Other public health issues (e.g. COVID-19, health and social care capacity to cope with heat)

Exposures

- Air Temperature – T_{max} , T_{min} or T_{ave}
- Temperature & humidity index – e.g. humidex
- “Feels” like temperature

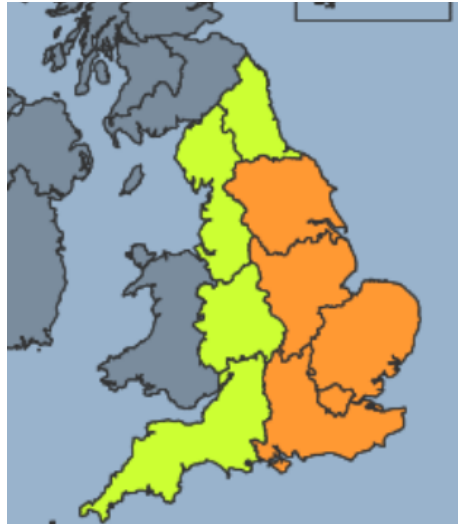
Geographic resolution

Contours

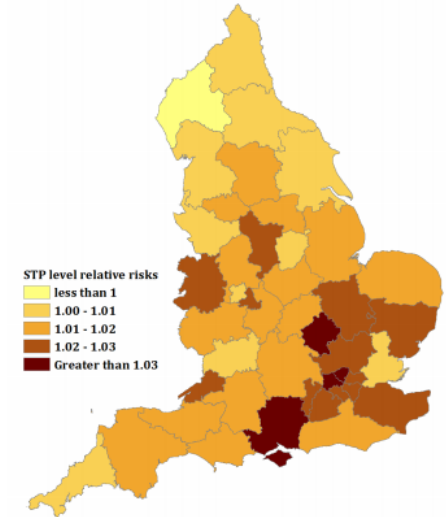


Administrative boundaries

Regions



Sustainable Transformation Partnerships



Summary

Data availability is key consideration for both exposure and health impacts

There are other issues that are also important that may influence both impact and exposure that need to be considered, but these may not fall within data sets

Just because data may be available, it may not provide you with the information you need

All the above will depend on what the main aim of the system is