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The impact of extreme weather on mental health

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Presentation content

- Understanding of the **risks to health of extreme weather events**, with a focus on mental health
- **Awareness** of extreme weather events, related plans, research and areas of work at PHE at local and national levels



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Extreme Events



What are extreme events?

‘Any extreme weather event or other natural hazard with the potential to cause adverse impact on human health’

1. Cold Weather

2. Heatwave

3. Floods

Drought

Wildfires

Landslides

Windstorms

Earthquakes

Tsunamis

Volcanic ash

Space weather etc



'EXTREME' WEATHER IN THE UK

2000 – flooding

2001- flooding

2003 – heatwave

2005 - flooding

2006 – drought

2006 - heatwave

2007 – flooding

2008 – flooding

2008 – snow and ice

2009 – snow and ice

2009 – flooding

2010 – flooding

2010 – snow and ice

2011 – warm spring

2011 – warm autumn

2012 - drought

2012 – wet summer

2013 – snow and ice

2013 – heatwave

2014 – flooding



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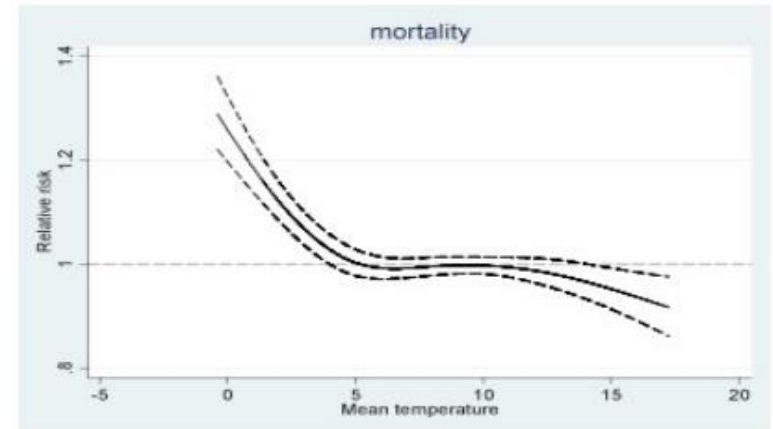
Cold Weather



Cold temperatures and mortality

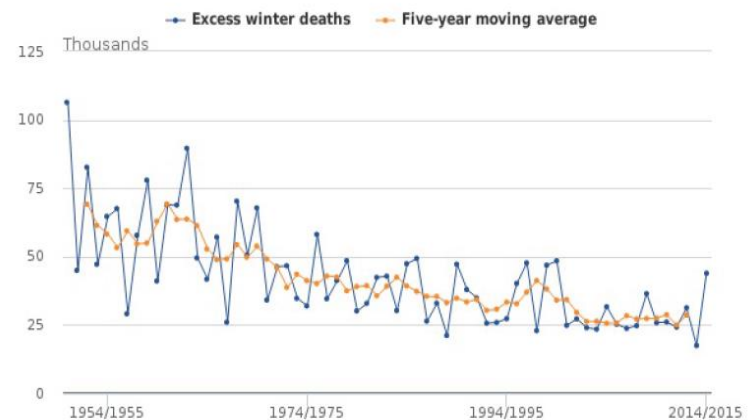
- The risk of death increases with falling temperatures¹
- Effects are seen from mean outdoor temperatures of 4-8°C (depending on region)¹
- Cold does not just kill people who were about to die anyway^{1, 2}
- Cold impacts on mortality are observed for up to 4 weeks following a cold day¹
- Most cold-attributable deaths are cardiovascular and respiratory

1. Hajat et al, Public Health 2016, PIRU CWP evaluation 2016
2. Rehill N, et al. BMJ Open 2015



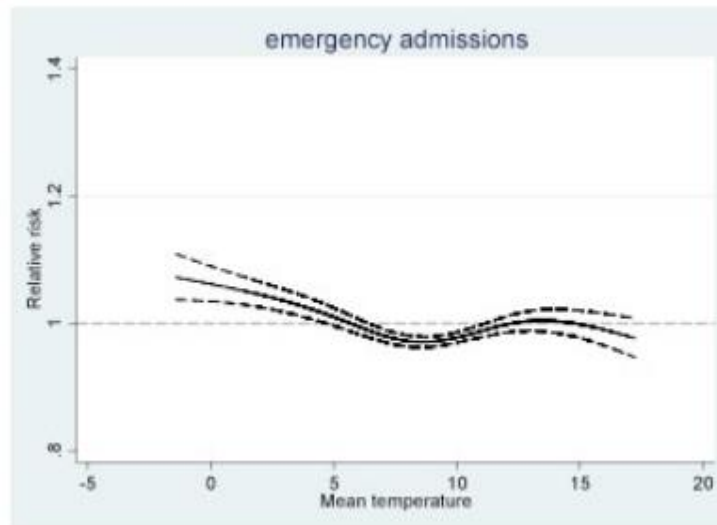
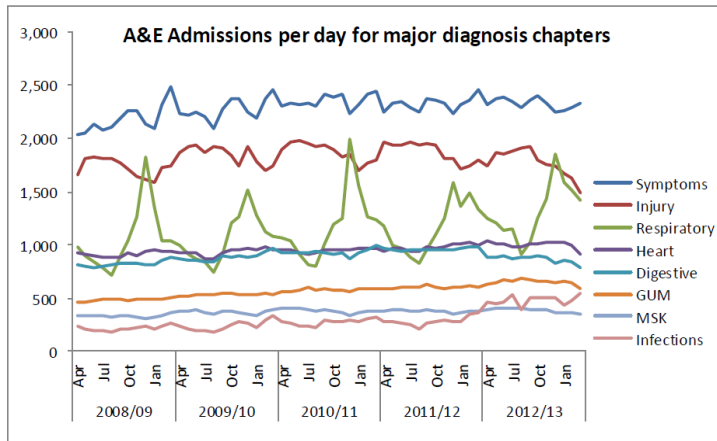
Risk curve for all-cause mortality in the North East region

Figure 1: Number of excess winter deaths and five-year central moving average, England and Wales, 1950/51-2014/15





Cold temperatures and morbidity



- Each winter sees an increase in emergency admissions to hospital ‘winter pressure’; particularly respiratory disease¹
- Relationships between emergency admissions and cold temperatures are similar to mortality but not as strong; significantly increased risk of respiratory and cardiovascular admissions²
- Cold homes linked to poor mental health; home improvements result in significantly improved mental health³
- Cold may increase sense of social isolation and vice versa⁴

1. NHS England (2014) Understanding Winter Pressures in A&E Departments
2. Hajat et al, Public Health 2016, PIRU CWP evaluation 2016
3. Howden-Chapman 2007, BMJ
4. Zhong and Leonardelli 2008 Psychological Science

Risk curve for all-cause emergency admissions in the North East region



Cold temperatures and mental health

MENTAL HEALTH

- More than one in four adolescents living in cold housing are at risk of mental health problems, compared with one in 20 adolescents who have always lived in warm housing¹
- Heating and energy efficiency interventions result in significantly improved mental health and well being^{2, 3}

1. Barnes et. (2008), NATCEN

2. Green and Gilbertson et al 2008. Warm Front, Sheffield Hallam

3. Howden-Chapman 2007, BMJ

4. Zhong and Leonardelli 2008 Psychological Science

5. Harrington 2005. Health and Social Care in the community

SOCIAL ISOLATION

- Cold ambient temperatures may increase perception of social exclusion and vice versa⁴
- Cold homes may increase social isolation as those affected are reluctant to invite friends or family to a cold house⁵.
- It can be difficult for children to study or do homework in a cold house, which affects educational and long-term health and work opportunities¹

The Cold Weather Plan Protecting health and from cold weather



Cold Weather Plan For England Making the Case: Why long-term strategic planning for cold weather essential to health and wellbeing



Commissioners (health and social care)

Level 0: Long-term planning – All year

- work with partner agencies to ensure that cold weather planning
- work with partners to ensure that a strategic approach to the risk of fuel poverty is taken across the local health and social care economy
- work with partner agencies to:
 - develop a shared understanding of EVDs and what partners can do
 - identify those most at risk from seasonal variations
 - improve winter resilience of those at risk
- ensure a local, joined-up programme is in place to support improved insulation, including uptake of energy-efficient, low-carbon solutions
- achieve a reduction in carbon emissions and assess the implications
- consider how your winter plans can help to reduce health inequalities and address the wider determinants of health
- ensure that organisations and staff are prompted to signpost vulnerable efficiency measures, benefits or related advice)
- work with partners and staff on risk reduction awareness (eg flu information and education)
- engage with local CVS organisations for planning and implementation

Level 1: Winter preparedness and action programme 1 November to 31 March

- communicate public health messages

Keep Warm Keep Well

Information for...
Over 60s
Low-income families
People living with a disability



Top tips for keeping warm and well

Cold weather can be bad for our health, especially for people aged 65 and older. As we age it takes longer to warm up, which raises the risk of increased blood pressure, heart attacks and strokes.
There are easy things you can do to help yourself stay healthy over the winter



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Heatwave



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Summer 2003

30,000 deaths in Europe

15,000 deaths in France

Particularly significant in Paris:

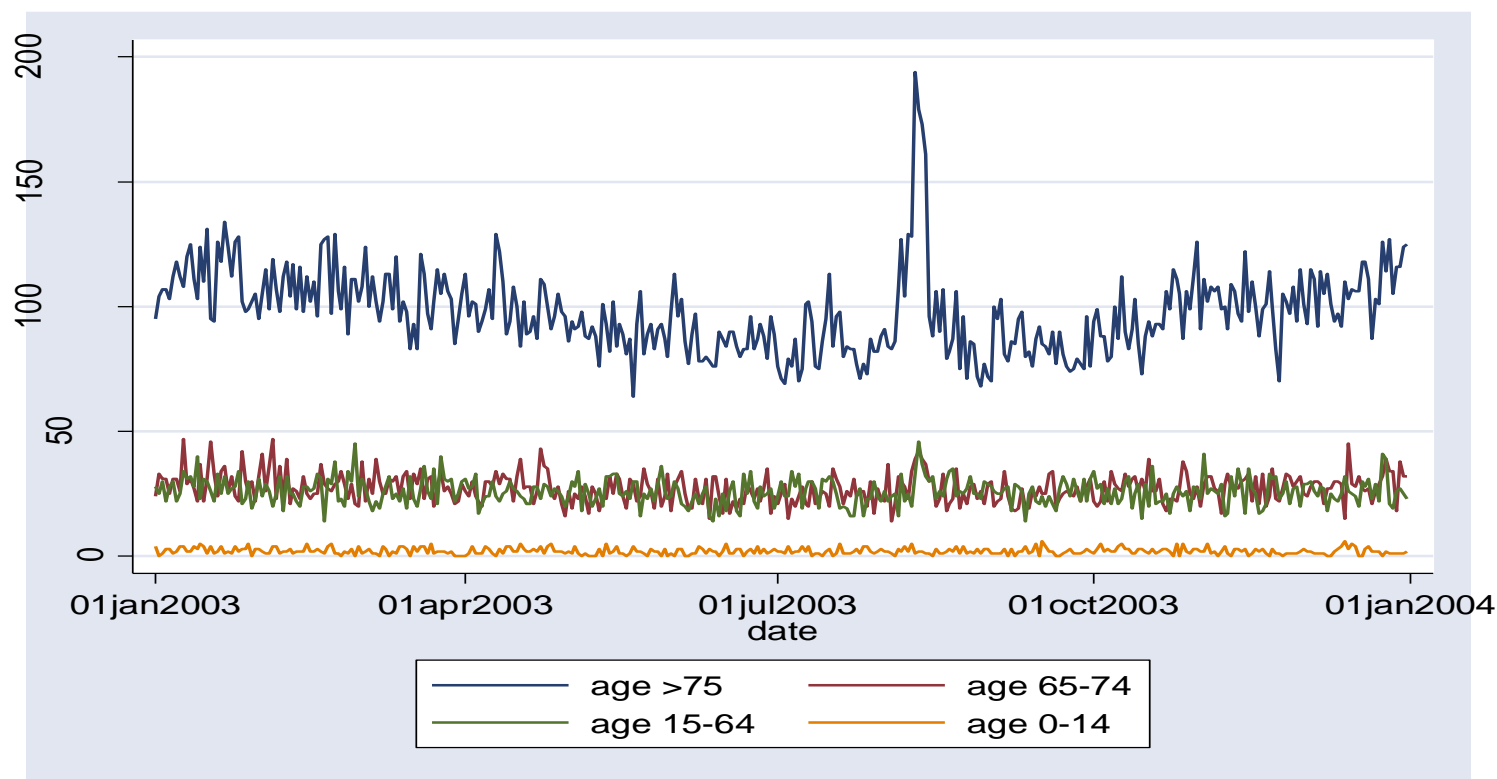
- temperature extremes: high minimum temperature
- poor meteorological forecast
- institutional failures: hospital and care home staff on holiday
- surveillance: small number of deaths reported
- no experience/knowledge: no public health measures
- “We didn’t know anything..” French Minister of Health

Based on Kovats





Daily mortality in London, 2003



Heatwave plan for England

Protecting health and reducing harm from
severe heat and heatwaves



May 2015



[Making the case: the impact of heat on health – now and in the future](#)

Ref: PHE publications gateway number: 2015049
PDF, 462KB, 21 pages



[Beat the heat: staying safe in hot weather \(leaflet\)](#)

Ref: PHE publications gateway number: 2016071
PDF, 417KB, 8 pages

This file may not be suitable for users of assistive technology. [Request an accessible format.](#)



[Beat the heat \(poster\)](#)

Ref: PHE publications gateway number: 2016071
PDF, 298KB, 1 page

This file may not be suitable for users of assistive technology. [Request an accessible format.](#)



[Beat the heat: keep cool at home \(checklist\)](#)

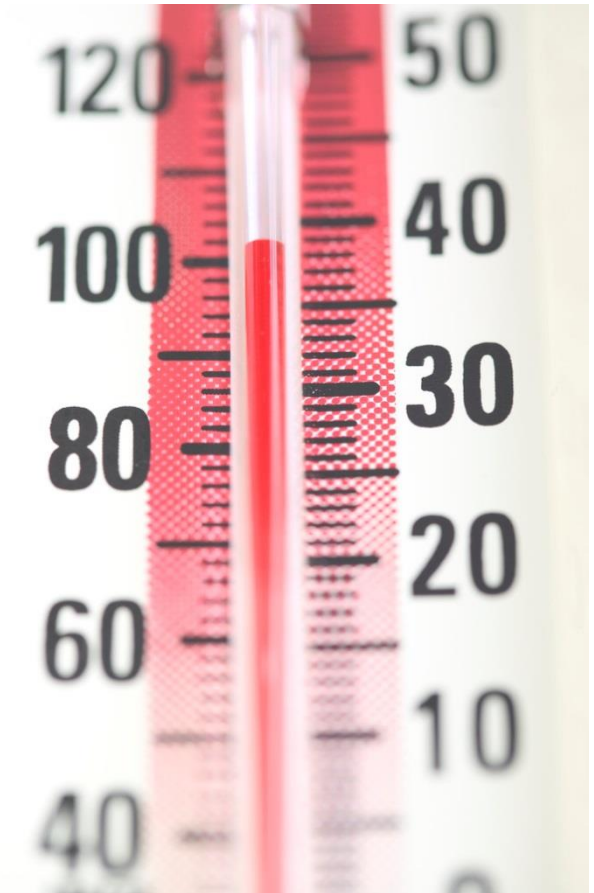
Ref: PHE publications gateway number: 2016071
PDF, 193KB, 2 pages

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Heat, violence and mental health

- As temperature rises, so does the incidence of violence
 - Increase in murders, assaults, violent suicide, and domestic violence when the weather is hot
 - C.24,000 assaults or murders in the US per year for every 2 degree increase in average temperature(1)
- Stress of experiencing natural disaster can lead to violence
 - Mental health conditions significantly more common amongst those exposed to violence (1)



(1) Warshaw C, Moroney, G. 2002. Mental Health and Domestic Violence. The Domestic Violence and Mental Health Policy Initiative



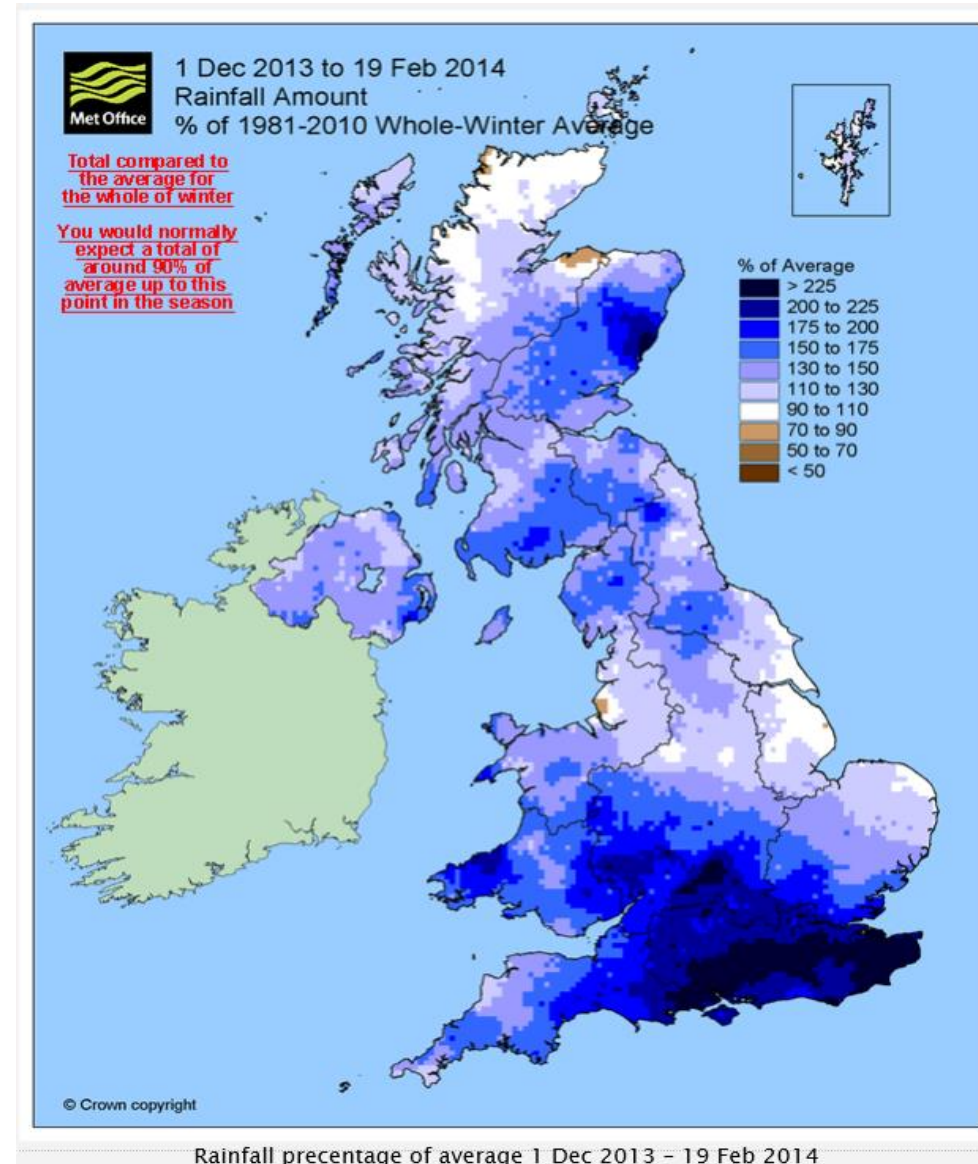
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Flooding and other disasters



Winter 2013/14

- Recurrent/prolonged flooding Dec 13 – Feb 14.
- UK's wettest winter on record since 1910
- New records of precipitation for the UK, Wales, east Scotland southwest England
- ~6000 properties flooded





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WHO Europe / PHE

Floods: Health effects and prevention in the WHO European Region

FLOODS IN THE WHO EUROPEAN REGION: HEALTH EFFECTS AND THEIR PREVENTION





Health impacts of flooding

Acute health effects

Associated with flood water and its debris:

- **Drowning** (walking or driving through flood water)
- **Physical trauma** (concealed or displaced objects; electrocution, fire)
- **Other health effects** such as heart attacks

Longer-term health effects

Occur as a consequence of flooding:

- **Mental health impacts** (secondary stressors)
- **Carbon monoxide poisoning**
- **Skin & gut infections** from contaminated flood water
- **Respiratory disease** from mould & damp
- **Rodent-borne disease**





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Flooding and mental health

Literature reviews:

Small scale surveys, routine data

Mortality estimates: 50% increase or 10% decrease

Short term mental health issues: (home flooded vs not)

- Doubling of symptoms of psychological distress
- 2-3 times increased risk of depression

Secondary stressors: in other disaster situations have been suggested to be more important in psychological outcomes than flooding itself



National Study of Flooding and Health

To determine the medium / longer term impact of flooding on mental health:

- 1) To quantify the impact of flooding on mental health and wellbeing starting at one year post-flood and then monitoring annually for up to ten years
- 2) To identify socio-demographic and environmental characteristics significantly associated with psychological morbidity and to explore if inequalities exist



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Other health effects

- Population displacement
- Disrupted water, power and food supplies
- Damage to infrastructure, including health care facilities





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National Flood Emergency Framework for England

update for 2014



Department
for Environment
Food & Rural Affairs

www.gov.uk/defra

The National Flood Emergency

Framework for England

December 2014





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Protecting and improving the nation's health

Health following

Flooding and front-line response

Floods

This factsheet impacts

See the effects of

Floods and

Experiencing disrupted. If their abilities underestimate the time to it when clear normal in the

While the effects also be a source

- difficulties
- difficulties
- disruption
- loss of support and work
- seeking compensation, loss

While experiencing going on to they should

What you

Support from the negative with families

This factsheet will affect people's mental health

How can flood

Flooding can have continue over extended following a flood. cope with being flooded at risk of going on persist, they should Most people's needs can protect against

While experiencing it is important to re cleaning up and recovery and rebuilding companies. The private rely on the private Some examples of

- health-related stress health concerns
- family and social separation from
- stress relating to loss of socialisation
- feelings of loss
- economic stress homes, loss of resources
- stress arising from

This leaflet and your flood available

Do not over anxiety and

Starting

- talk to your
- wear rubber lot of work face mask they can
- remember cuts or floodwater
- take care wet. Or

How are

- wash clothes
- clean and
- clean and using the to clear spoons
- wash surface detergent that a lot waste-

Guidance Essential response

Flood

- "I think"
- "What"
- "What"
- "Why"
- "What"
- "Did m"
- "How"
- "Shou"
- "Shou"
- "Is floo"
- "How"
- "What"
- "How"
- "What"
- "How"
- "What"
- "Who"
- "My m"
- "How"
- "I've b"
- "What"
- "How"
- "How"
- "How"
- "What"
- "How"
- "If I do"
- "How"
- "Can I"

Flooding: advice for the public

Advice on:

- planning for flooding before it happens
- what to do during a flood
- recovering and cleaning up after a flood



Top tips for staying safe during floods:

1. Think about flooding before it happens. Sign up for free flood warnings and create a personal flood plan.
2. Try to avoid contact with flood water. Do not drive through flood water and do not let children play in flood water.
3. Feeling distressed after a flood is normal. Support from family and friends is important during the recovery process.
4. Do not use petrol or diesel generators indoors to dry out your home. The exhaust gases contain carbon monoxide, which can kill.
5. When cleaning up after a flood, wear rubber gloves, boots and eye protection, and wash hands afterwards.

Floodline: 0345 988 1188

NHS '111' for non-urgent health concerns

Food Standards Agency 020 7276 8829 for food safety concerns



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Acknowledgements

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Get in touch! ExtremeEvents@phe.gov.uk