Seasonal mortality

Why is this a public health issue

Seasonal mortality is the tendency for there to be more deaths when the weather is particularly hot or cold. People are more likely to die in conditions of extremes in temperature. Currently in England, there are more excess deaths in winter than in summer.

The Health Protection Agency (HPA), now incorporated with Public Health England (PHE) in its report "Health effects of climate change in the UK 2012" found that excess deaths from exposure to extremes of heat or cold increased by around 2% per 1°C temperature change. In addition, whilst the effects of extremes of heat were normally evident rapidly, within 24 hours, exposure to extremes of cold could take as long as 4 weeks to manifest itself in premature death.

There are also excess deaths that result from extreme weather events, either from freezing conditions (snow and ice causing falls, fractures and road traffic accidents) or from excess heat (heat waves causing overheating in the elderly or vulnerable, causing exhaustion, dehydration and confusion). These events are likely to increase in the future due to climate change.

Excess seasonal mortality has the greatest impact on those on low incomes, those living alone, the elderly, vulnerable, disabled and those living in care homes and also on women due to their longer life expectancy.

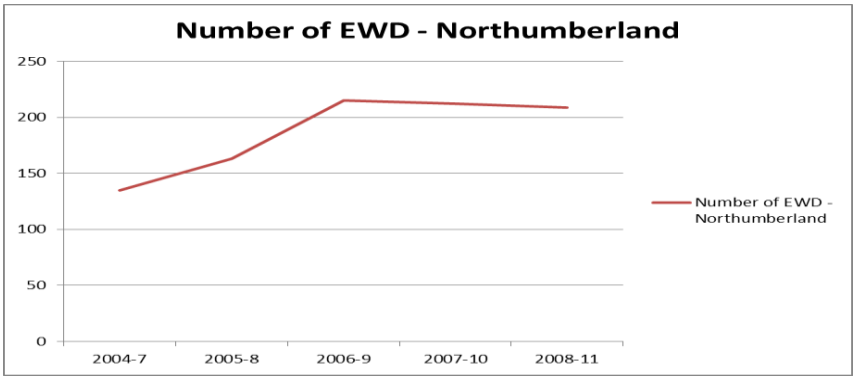
Excess Cold

Cold kills and in England, there are more deaths in the winter, particularly during the coldest weather (2°C and/or where there is heavy snow/widespread ice). Excess winter deaths form part of the public health outcomes framework, within the 4th domain which covers preventing premature mortality. Public health England monitors these excess winter deaths in its interactive atlas[1] allowing comparisons to be drawn with other areas.

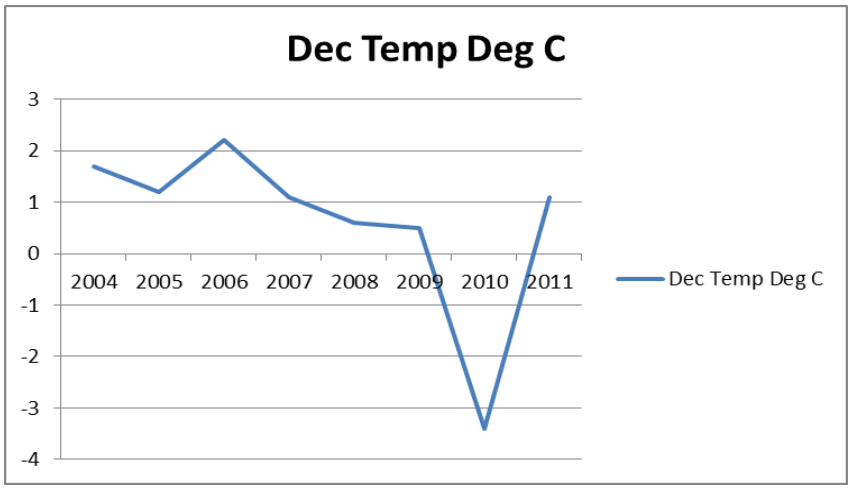
Excess winter mortality is calculated by looking at the average number of deaths recorded in the winter months of December, January and February, and comparing to the average number of deaths during the other 9 months. These excess winter deaths (EWD) averaged 27,464 in 2008/11 (England)[2] and have been rising for the last three years. The figures for Northumberland are in the chart below and follow the England trend, whilst being slightly above the England average.

1 http://www.wmpho.org.uk/excesswinterdeathsinenglandatlas/default.aspx

2 http://www.apho.org.uk/default.aspx?QN=HP_METADATA&AreaID=71131



The number of EWD closely correlates to a spell of cold weather. When the temperature drops sharply, the increase in the number of deaths follows. The chart below records the average temperature during December between 2004 and 2011. After a spell of milder winters between 2004 and 2006, the subsequent colder winters, particularly the harsh winter of 2009/10, shows in the recorded EWD.



As the temperature drops, the effects of being cold or being in a cold home start to affect physical health. There is an increased risk from respiratory and circulatory disease, particularly in the very young, the elderly or those with pre-existing health conditions. Less mobile people and those on low incomes are particularly affected, with most deaths occurring in older people (over 75) and in people with long term conditions such as diabetes.

Within the home, a temperature of between 18 and 21°C is recommended. As the temperature drops to 18°C, there is no risk to health although older, more sedentary people may feel cold. Once the temperature drops to below 16°C, resistance to respiratory disease is diminished. When the temperature is between 9-12°C, exposure for more than 2 hours causes core body temperature to drop, blood pressure rises and there is an increased risk of cardio vascular disease. By 8°C hypothermia can set in.

So what happens to the body as the temperature falls?

- Blood pressure rises by 1.3mmHg for each 1°C drop
- Blood viscosity increases

- Skin surface cools
- Risk of stroke and heart attack increases
- Protective function of the respiratory tract reduces
- Broncho-constriction increases
- Mucus production increases whilst mucus clearance impaired
- Increased dampness promoting mould growth and increasing the risk of respiratory infections.
- Risk of accident such as trips and falls
- Risk of hypothermia,
- Deteriorating mental health.

The principal cause in England of EWD is too many people living in cold, damp homes that they cannot afford to heat. The factors influencing this are

- Energy costs
- Income
- Energy efficiency

Energy costs have risen by around 110% between 2004 and 2011. The average annual dual fuel bill has risen from around £605 to £1,603[3] This is significantly in excess of inflation (20-24%), average earnings (16%) and benefit rises (20%). As a result, households are having to spend a larger proportion of the household income on energy. Households with fixed incomes or benefits are particularly likely to be in fuel poverty.

Energy efficiency measures have reduced home energy consumption in some cases, but the savings have been quickly eroded by soaring energy costs. The level of winter deaths in England in recent years is higher than that of other colder countries such as Finland related to housing issues and energy costs (PHE Cold Weather Plan 2013[3])

PHE produces an annual updated Cold Weather Plan for health and social care organisations and professionals, communities and individuals. This defines 5 levels of action

0 – long term planning (throughout the year)
1 – winter preparedness and action
2 – severe winter weather – alert and readiness
3 – severe weather action
4 – major incident emergency response

Excess Heat

Heat can also kill. In England summer temperatures have rarely risen sufficiently for that to be a significant issue, although climate change predictions for the future

3 http://www.theccc.org.uk/wp-content/uploads/2012/12/1672_CCC_Energy-Bills_bookmarked.pdf

4 https://www.gov.uk/government/publications/cold-weather-plan-for-england-2013

suggest that over time, this will be an increasing risk. The last heatwave of 2003 accounted for around 2,000 additional deaths attributed to the heat. 85% of these were of persons over the age of 75. However, these primarily occurred in the South East, South West and London areas. North East of England and Northumberland in particular did not report any significant increase during this period.

When temperatures exceed 25C for extended periods additional deaths due solely to the heat can occur. In excess of 27C, those with impaired sweating mechanisms find it especially difficult to keep their bodies cool. Warm nights mean people cannot cool down and lead to physiological stress as well as affecting sleep.

For the first time, in 2004, the Department of Health produced a Heatwave Plan 4 in response to the deaths in 2003. This plan has been re launched each year since, In 2008, the Health Protection Agency report "Health effects of climate change in the UK" estimated that there was a 1:4 risk of SE England experiencing a serious heatwave in the next 10 years, resulting in 9,350 excess deaths. No such prediction was made for NE England.

The Heatwave Plan, and its accompanying specialist advice notes, form part of a comprehensive contingency plan designed to ensure that health professionals and those caring for vulnerable older people know what action to take both in advance of, and in the event of, a heat wave. The plan's purpose is to enhance resilience in the event of a heat wave. It is an important component of overall emergency planning; and will become increasingly relevant in adapting to the impact of climate change. Guidance addresses the need to plan at every level of the system, and defines four heat wave levels, with actions identified for each level.

What can the Council do about it?

Guidance, advice and benefits all help to increase people's awareness of the risks associated with temperature extremes and the actions they can take to reduce the risk of harm.

There are a number of services that offer practical and financial advice so that people on low incomes can claim all the benefits for which they are eligible.

Grants are available under the Energy Company Obligation (ECO) scheme to priority and at risk households. The Green Deal scheme is also now available to households to allow them to fund energy efficiency measures from the resultant savings in energy costs.

Advice is available from the Council's website. A national winter fuel payment is paid to the over 60s to alleviate the additional costs of heating in winter. An additional cold weather payment is paid when there is a seven day period of very cold weather between 1 November and 31 March for those on benefits.

Public Protection conduct Housing Health and Safety Rating System (HHSRS) checks on Houses in Multiple Occupation (HMOs) and in the private rented sector. These standard checks include a risk assessment of excess cold and heat issues.

In response to the particularly harsh winter of 2009/10, the Department of Health made additional funding available to assist in planning and practical measures for extreme cold. In the previous two years, the county council successfully bid for this funding from this 'Warm Homes Healthy People' fund.

Promotion of immunisation to protect older people, young children and those with long term conditions against seasonal flu contributes to reducing the risk of death in winter.

Planning for adverse weather conditions such as ice and snow – the council has severe weather protocol, which are part of its cold weather planning approach.

Planning use of health and social care resources in Northumberland to protect the population, particularly the most vulnerable through the local winter plan involving NCC and NHCT FT and other partners.