

Cold-related ill health and excess winter deaths

Ref HSCW 016

Why is it important?

Cold-related ill health and excess winter deaths (EWD) are a continuous and very important public health issue in the UK and are potentially amenable to effective intervention. Over the last decade some winters have delivered significant periods of severe and sustained cold weather, highlighting the need for effective plans to mitigate the effects of cold weather on health. Cold weather is associated with an increase in illness and injuries. Cold-related illnesses such as flu complicate existing long-term conditions such as circulatory and respiratory diseases and result in many more people presenting to GPs and hospitals. There is significant evidence that the drivers of fuel poverty (low income, poor energy efficiency and energy prices) are strongly linked to living at low temperatures (Wilkinson et al 2001).

Fuel poverty relates to a combination of factors as highlighted above. It can be caused by a poorly insulated home, inefficient or inadequate heating, high fuel prices, low income or type of resident (for example, older people) or those with disabilities may spend more time at home and therefore need heating on more often. People on a low income may need to use more fuel to keep warm in poorly insulated housing. Any increase in fuel prices will push some people into (or deeper into) fuel poverty. This will be true unless the increase in fuel prices coincides with, for example, improvements to the insulation of their own homes.

Fuel poverty in England is measured using the Low Income High Costs (LIHC) indicator (Public Health Outcomes Framework, Indicator Definitions and Supporting Information, PHE). Under the LIHC indicator, a household is considered to be fuel poor if:

- it has required fuel costs which are above average (the national median level)
- it were to spend that amount, it would be left with a residual income below the official poverty line

Further to this, the Marmot Review (2010) showed that low temperatures are strongly linked to a range of negative health outcomes. EWDs are greatest in both relative and absolute terms in elderly people and for certain disease groups and are avoidable.

Cold-related ill health and excess winter deaths (EWDs) is a multi-faceted issue. The causes are complex, and no single agency or service can tackle the issue alone. Factors which increase the risk of ill health and death from the cold can be categorised as:

- Population factors
- Housing factors
- Economic factors
- Behavioural factors
- Other contributing health factors (such as underlying long term condition)

Excess winter deaths are defined as the increase in deaths which occur during the winter, compared to the number of deaths which would be expected across the rest of the year. The excess winter deaths index (EWDI) shows the percentage of extra deaths which occurred in the winter compared to the summer. It is expressed as a percentage. For example, an EWDI of 40 means that there were 40% more deaths in the winter of that year compared to the summer. The number of excess deaths occurring in winter depends on temperatures, levels of disease in the population (particularly influenza) and other factors such as underlying disease prevalence.

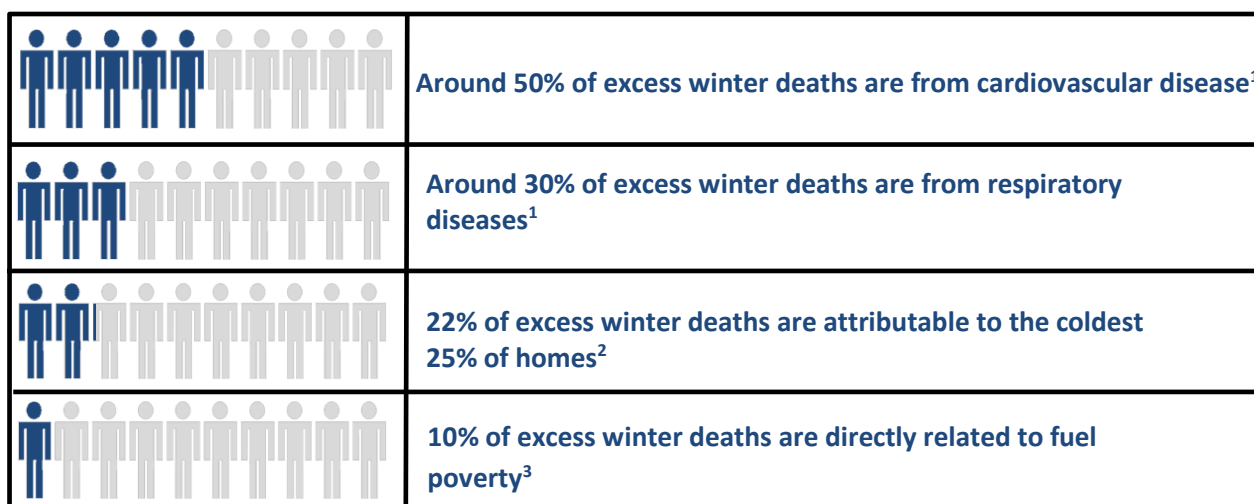
The ONS (Office for National Statistics) Statistical Bulletin: Excess Winter Mortality in England and Wales 2015/16 (provisional) and 2014/15 (final) estimates that nationally:

- There were 24,300 excess winter deaths
- 15% more deaths occurred in winter months than in non-winter months

- In 2015/16 excess winter mortality significantly decreased from 2014/15, when the number of excess winter deaths was uncommonly high¹
- There were similar levels of excess winter mortality across all age groups, with those aged 0 to 64 affected more than in previous years and those aged 85+ affected less than previous years
- Following the pattern of previous years, there were more excess winter deaths in females than males in 2015/16 - excess winter deaths for both sexes decreased from the 2014/15 period
- More than one-third of all excess winter deaths were caused by respiratory diseases in England and Wales in 2015/16
- There is no clear geographical pattern in excess winter mortality over time - however, in 2015/16, Wales had the highest excess winter mortality index at 17% and East of England had the lowest excess winter mortality index at 13%

The [Cold Weather Plan for England: Protecting health and reducing harm from cold weather](#) (Public Health England, 2016) aims to prevent avoidable harm to health by alerting people to the negative health effects of cold weather and enabling them to prepare and respond appropriately. The plan sets out a series of actions to be taken by the NHS, social care and other agencies throughout the year in response to forecast or actual severe winter weather. It also encourages local communities to support the most vulnerable in their area, such as checking on them during severe weather and offering other support. The Plan is clear that ‘fuel poverty is one of the most significant, yet least recognised factors causing death and illness’.

Figure 1. Some key facts about excess winter deaths, various sources.



Sources: **1.** Excess winter mortality in England and Wales: 2015/16 (provisional) and 2014/15 (final). ONS, 2016.

2. Local action on health inequalities: Fuel poverty and cold home-related health problems. UCL Institute of Health Equity and Public Health England, 2014. **3.** Hills J. Getting the measure of fuel poverty: Final Report of the Fuel Poverty Review. London: 2012.

Health effects of cold weather can be grouped into two categories:

Direct

Direct health effects of cold weather can include increased incidence of:

- Heart attacks
- Strokes
- Respiratory disease
- Flu
- Falls and injuries
- Hypothermia

Indirect

Indirect effects of cold weather can include:

- Poor mental health, including depression
- Risk of carbon monoxide poisoning if boilers, cooking, and heating appliances are poorly maintained or poorly ventilated

The health effects of cold weather vary by cause and will occur at different times after a cold day:

- After 2 days – heart attacks
- After 5 days – strokes
- After 12 days – respiratory illness

¹ The estimate of 43,900 excess deaths in England and Wales in 2014/15 was the highest estimate since 1999/2000

In England there is a 19% rise in death rates every year during the winter months. This amounts to an average of 27,000 'excess' winter deaths or about 1,560 more people per week dying between December and March compared with the rest of the year. Many northern European countries with much colder weather, such as those in Scandinavia for example, have relatively fewer excess winter deaths in winter compared to the UK.

Durham data – the local picture and how we compare

In County Durham:

- Around 27,600 people live in fuel poverty (Public Health Outcomes Framework, indicator 1.17, 2014)
- In 2014 levels of fuel poverty locally were the same as the North East (12.2%), but statistically significantly higher than England (10.2%). This uses the government's new Low Income High Cost (LIHC) fuel poverty indicator. In 2012/13, fuel poverty was 21.9% but this was calculated using the previous fuel poverty indicator, whereby a household was in fuel poverty if it spent more than 10% of its income to provide a warm and healthy indoor environment
- Estimates suggest that 1 in 10 excess winter deaths are caused by fuel poverty - nationally this equates to 2,700 people per year, more than die on the roads each year (Public Health Outcomes Framework, PHE) - this would mean 32 deaths in County Durham being caused by fuel poverty in 2015/16

Between 2005/6 and 2014/15 there was an annual average of around 26,000 excess winter deaths each winter in England. For the same period in County Durham, the annual average was 327 excess deaths per year (Excess Winter Mortality in England and Wales, 2015/16 (Provisional) and 2014/15 (Final), ONS, 2016).

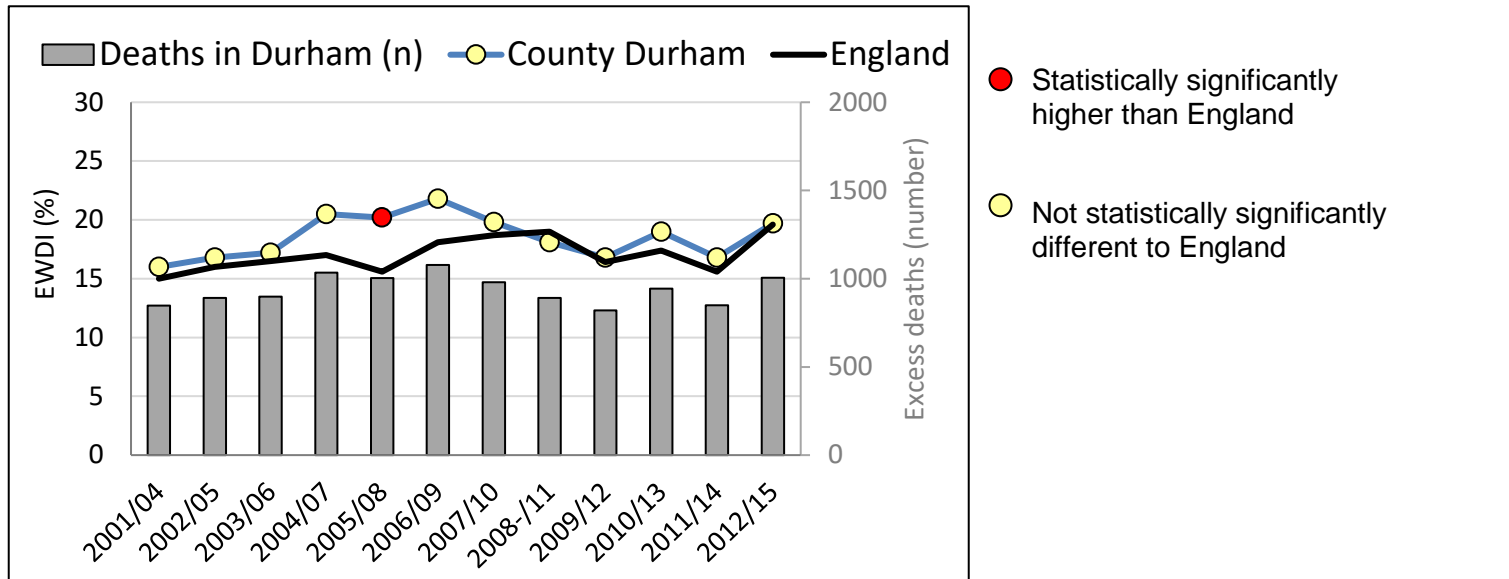
Indicators on fuel poverty and the EWDI are included in the Public Health Outcomes Framework (Table 1). Reporting the EWDI covers single years and 3 year pooled periods, for all ages and those aged 85+, and for persons, men and women. Of these indicators, only fuel poverty in County Durham is statistically significantly higher than England.

Table 1: Comparing key indicators for excess winter deaths, County Durham, North East and England
Source: Public Health Outcomes Framework, PHE (March 2017)

Indicator	Period	County Durham		North East	England
		Count	Value		
1.17 - Fuel poverty	2014	27,618	12.2%	12.2%	10.6%
4.15i - Excess winter deaths index (all ages) (Persons)	14/15	487	29.1	27.9	27.7
4.15i - Excess winter deaths index (all ages) (Male)	14/15	221	27.7	20.4	23.6
4.15i - Excess winter deaths index (all ages) (Female)	14/15	266	30.3	35.1	31.6
4.15ii - Excess winter deaths index (age 85+) (Persons)	14/15	256	45.6	43.5	40.1
4.15ii - Excess winter deaths index (age 85+) (Male)	14/15	85	41.5	29.1	36.3
4.15ii - Excess winter deaths index (age 85+) (Female)	14/15	171	48	52.2	42.4
4.15iii - Excess winter deaths index (3 years, all ages) (Persons)	12/15	1,005	19.7	19.3	19.6
4.15iii - Excess winter deaths index (3 years, all ages) (Male)	12/15	418	17.1	16	16.6
4.15iii - Excess winter deaths index (3 years, all ages) (Female)	12/15	587	22.1	22.3	22.4
4.15iv - Excess winter deaths index (3 years, age 85+) (Persons)	12/15	445	26	28.1	28.2
4.15iv - Excess winter deaths index (3 years, age 85+) (Male)	12/15	122	19.9	24.4	26.5
4.15iv - Excess winter deaths index (3 years, age 85+) (Female)	12/15	323	29.4	30.2	29.2

	Statistically significantly worse than England
	Not statistically significantly different to England

Figure 2: Trend in excess winter deaths index, County Durham and England, and number of excess winter deaths (County Durham only), persons, 3 years, all ages. Source: Public Health Outcomes Framework, Public Health England



- For the period 2012-15, the excess winter death index for County Durham was not statistically significantly different to England (persons, all ages)
- During this period, there were over 1,000 excess winter deaths in County Durham, averaging at 335 deaths per year
- Over time, the EWDI in County Durham has shown little variation, ranging from a low of 16% in 2001-2004 to a high of 21.8% in 2006-2009

How does this topic link to our strategies and plans?

The cross-cutting nature of the agenda has enabled an approach whereby the issue has been highlighted in a number of key partnership plans:

- The **County Durham Joint Health and Wellbeing Strategy 2016-2019** has the ambition to reduce excess winter deaths by integrating and rolling out interventions to address the impact of fuel poverty on excess mortality and morbidity (p.20) <https://democracy.durham.gov.uk/documents/s48094/Item%20%20-%20Appendix%20%20-%20Joint%20Health%20and%20Wellbeing%20Strategy%202015-18.pdf>
- The **County Durham Cold Weather Plan 2016/17**, in line with the national Cold Weather Plan, embraces the idea that action to address the impact of living in cold homes needs to occur year round <https://democracy.durham.gov.uk/documents/s58564/Item%20%20-%20Durham%20County%20Councils%20Cold%20Weather%20Plan.pdf>
- The **County Durham Affordable Warmth Strategy 2015-20** has an aim to ‘improve the health and wellbeing of residents and reduce health inequalities by minimizing the negative impacts of cold homes’ (p.5-6) <http://www.durham.gov.uk/media/1058/Affordable-warmth-action-plan/pdf/AffordableWarmthActionPlan.pdf>
- The **County Durham Climate Strategy 2015-20** embraces action on the built environment, one element of which is the energy-efficiency of all buildings <https://democracy.durham.gov.uk/documents/s52773/15%20Climate%20Change%20Strategy.pdf>

Author:	Approver:
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Published: April 2017

Data sources:

[Statistical Bulletin: Excess Winter Mortality in England and Wales 2015/16 \(provisional\) and 2014/15 \(final\) ONS \(Office for National Statistics\)](#)

[Cold Weather Plan for England: Protecting health and reducing harm from cold weather, Public Health England, 2016](#)

[Public Health Outcomes Framework, Public Health England](#)

[Local action on health inequalities: Fuel poverty and cold home-related health problems - UCL Institute of Health Equity and Public Health England, 2014](#)

[Getting the measure of fuel poverty: Final Report of the Fuel Poverty Review - Hills J., 2012](#)

Stay well this winter: Excess emergency winter admissions in the North East - Public Health England, 2017