Excess Winter Deaths in Wirral

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Introduction

The UK experiences higher levels of mortality in winter than in summer. Excess winter deaths are associated with cold weather with studies finding that mortality increases as daily temperatures fall (below 18 degrees) [1]. European countries with colder climates such as the Scandinavian countries, experience fewer excess winter deaths than the UK [2], suggesting that factors other than temperature contribute to excess winter mortality.

Deaths from respiratory and circulatory diseases are responsible for most of the increase in deaths seen during the winter months. Older people experience the greatest increase in deaths each winter, with over 85 year olds at most risk. Warm housing is important but it can coexist with high winter mortality. Outdoor cold stress has been independently associated with high excess winter mortality [3, 4].

For more background information on excess winter deaths, please see the evidence review produced by NHS Wirral Performance & Public Health Intelligence Team at: Excess Winter Deaths review (September 2009)

This report aims to examine the number and proportion of the excess winter deaths occurring in Wirral.

Method

What does excess winter deaths measure?

Box 1: Definitions of excess winter deaths, EWD Index & Fuel Poverty

Excess Winter Deaths	EWD Index	Fuel Poverty
The Office of National Statistics (ONS) calculate excess winter deaths as the number of deaths occurring in the four winter months (December to March) minus the average number of deaths during the preceding four months (August to November) and subsequent four months (April to July).	The excess winter death index (EWDI) is the number of excess winter deaths expressed as a percentage of the average of the non winter deaths.	A household is in fuel poverty of, in order to maintain a satisfactory heating regime it would be required to spend more than 10% of its income (including Housing Benefit or Income Support for Mortgage Interest) on all household fuel use. [5]

Data analysis

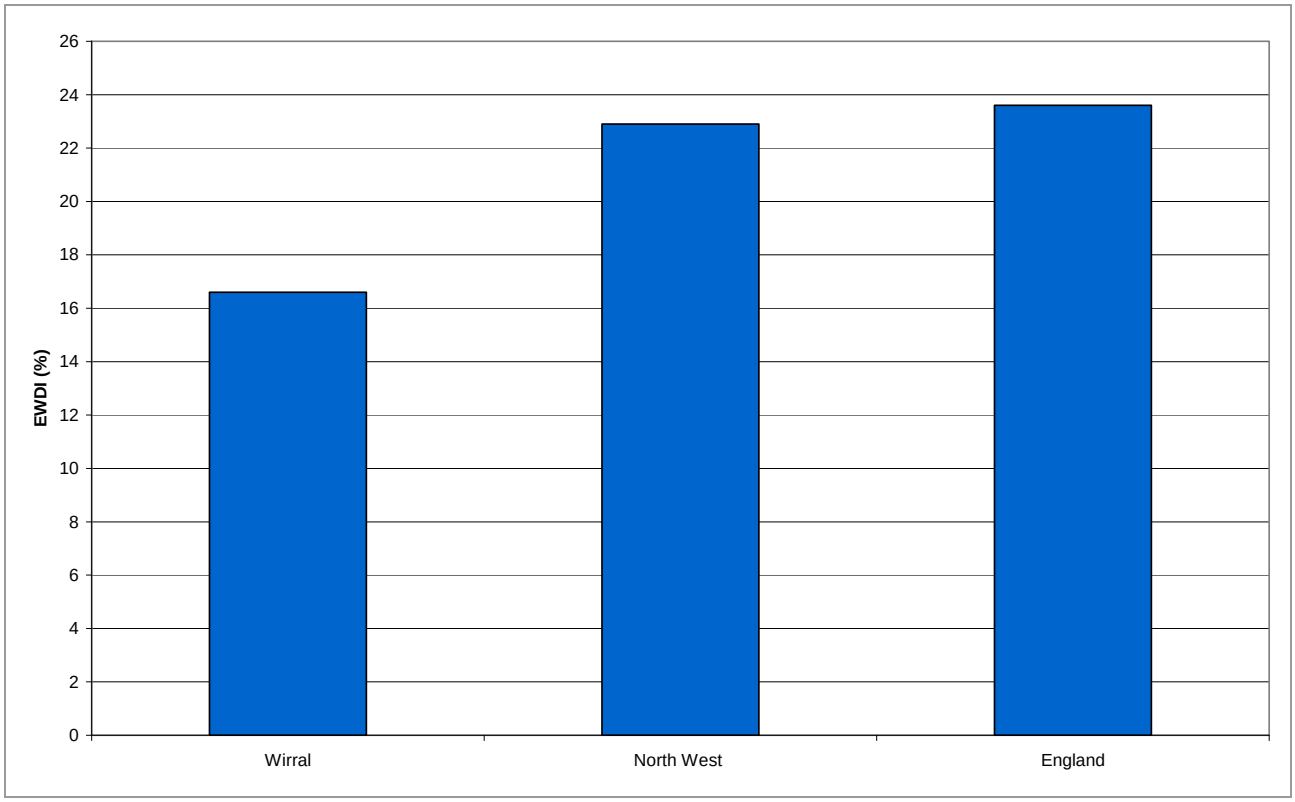
Data from ONS annual deaths table was extracted from 2004-2009. The total number of deaths in Wirral for this period was 21585. The data included information about demographics (age and sex), area of residence (postcode) and the underlying cause of death. The postcode of residence was used to classify an individual to a deprivation quintile.

Results

Excess winter deaths in Wirral

Data from 2004 to 2009 showed there were 947 excess winter deaths in Wirral, an average of 189 excess winter deaths per year. In 2008-09, the EWDI was 16.6% in Wirral, compared to 22.9% in the North West and 23.6% in England (see Figure 1).

Figure 1: Excess winter deaths index in Wirral, North West and England in 2008-09

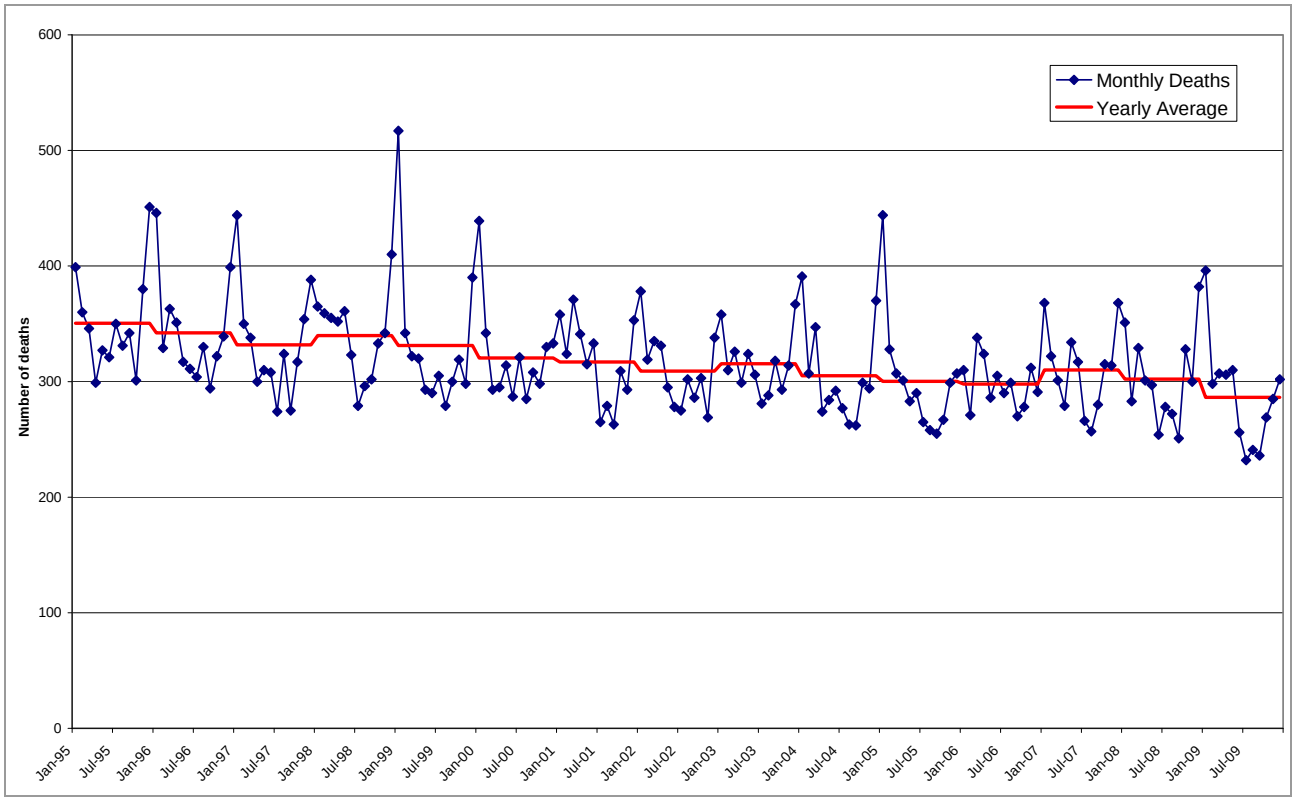


Source: ONS Annual Deaths, 2011

Trends in excess winter deaths

Excess winter deaths have been steadily declining (Figure 2). All cause mortality peaked in the winter of 1998-99, since then the general trend for excess winter mortality has continued to decrease, peaking again in the winter of 2004-05.

Figure 2: Seasonal variation in all cause mortality in Wirral & mean number of deaths by calendar year, 1995 to 2008



Source: ONS Annual Deaths Table, 2010

Excess winter deaths by age and sex

Excess winter deaths index is highest for females and older people (Table 3). Almost half of the excess deaths from 2004 to 2009 were in people aged 85 years and over.

Table 3: Excess winter deaths by age band in Wirral, 2004-09 pooled

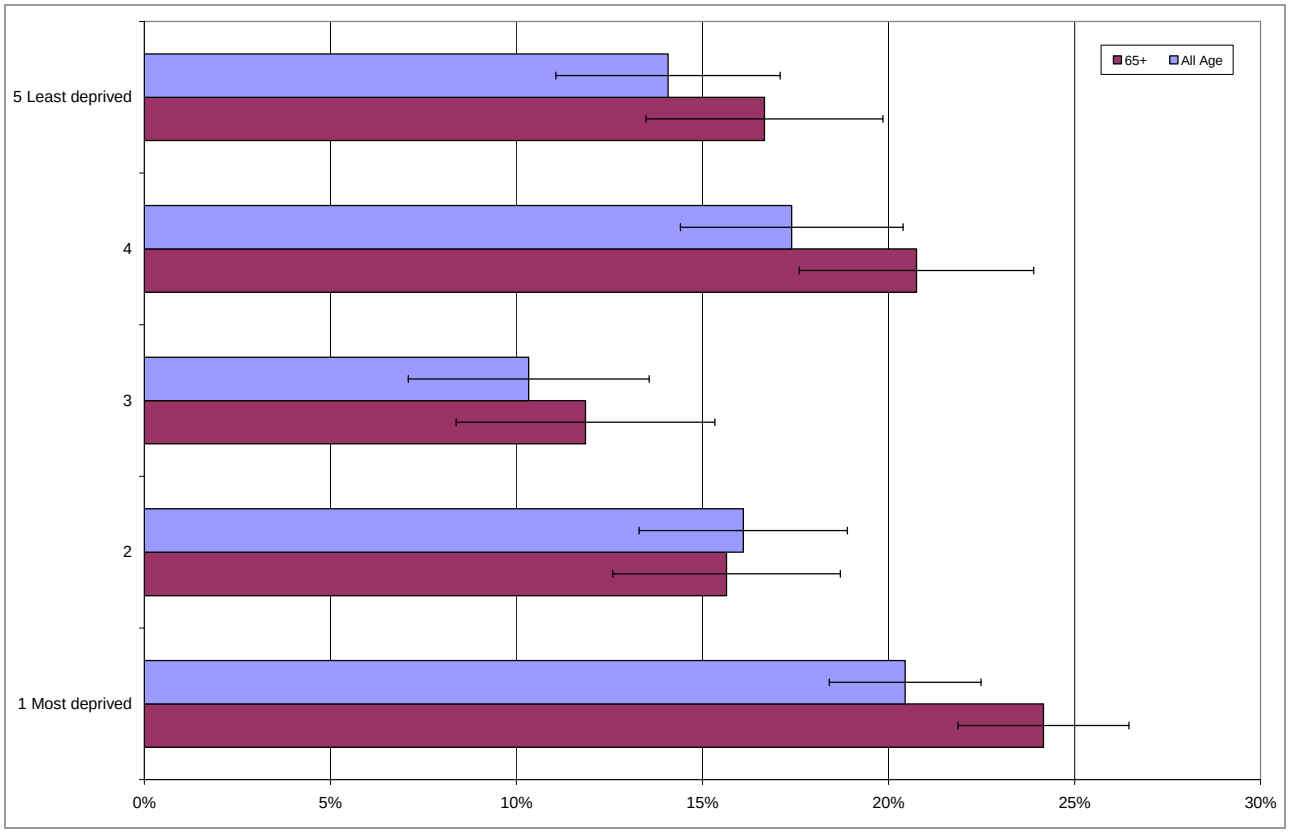
Age Group	Males		Females		Persons	
	Number	EWDI (%)	Number	EWDI (%)	Number	EWDI (%)
0-64	61.5	10.1	7	1.7	68.5	6.7
65-84	134	9.0	266	19.8	400	14.1
85+	160	26.4	318	25.6	478	25.9

Source: ONS Annual Deaths Table, 2010

Excess winter deaths and deprivation

Evidence on a link between excess winter deaths and deprivation is unclear [6]. In Wirral there was some difference between the excess winter death index between the most and least deprived quintiles, with excess winter deaths index lower for quintiles 2, 3 and 5(Figure 4).

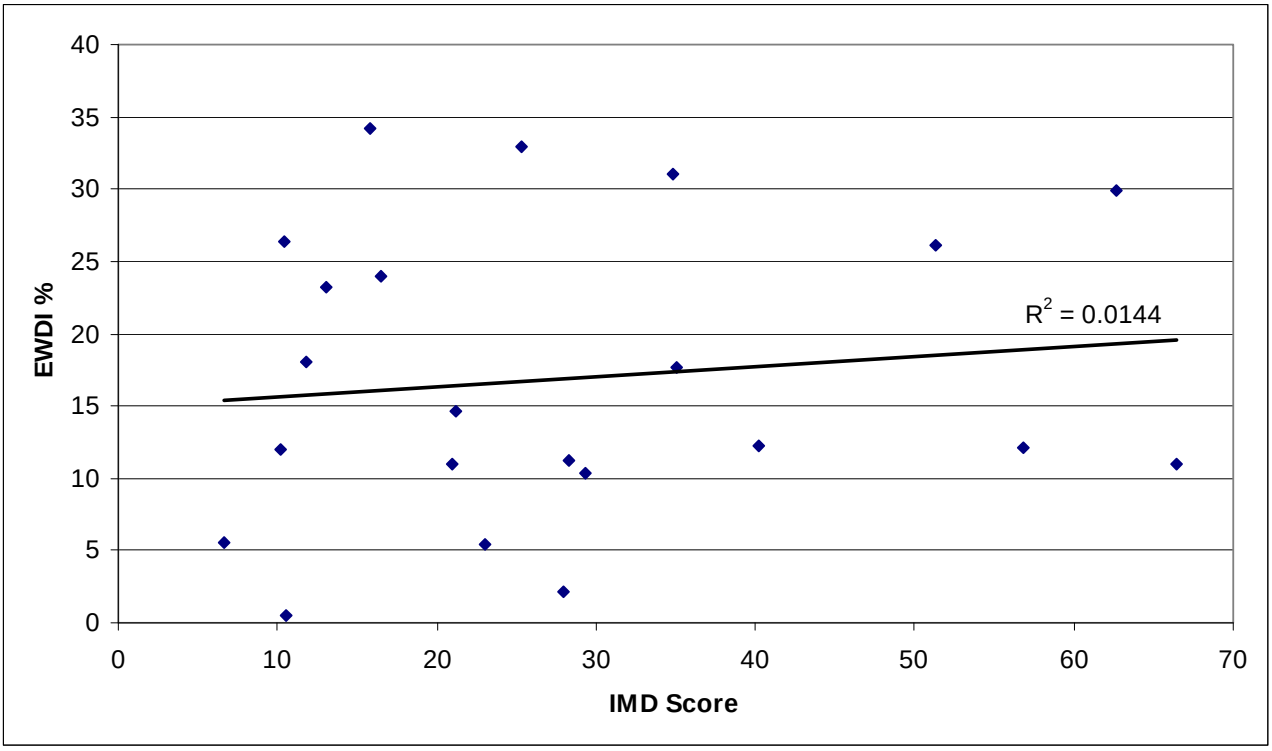
Figure 4: Number of excess winter deaths by IMD quintile in Wirral, 2004-09 pooled



Source: ONS Annual Deaths Table, 2010

Figure 5 shows a weak correlation between deprivation and excess winter deaths (r=0.1).

Figure 5: Correlation between Index of Multiple Deprivation Score 2010 and Excess Winter Deaths Index (ONS wards), for all ages, 2004-2009 pooled



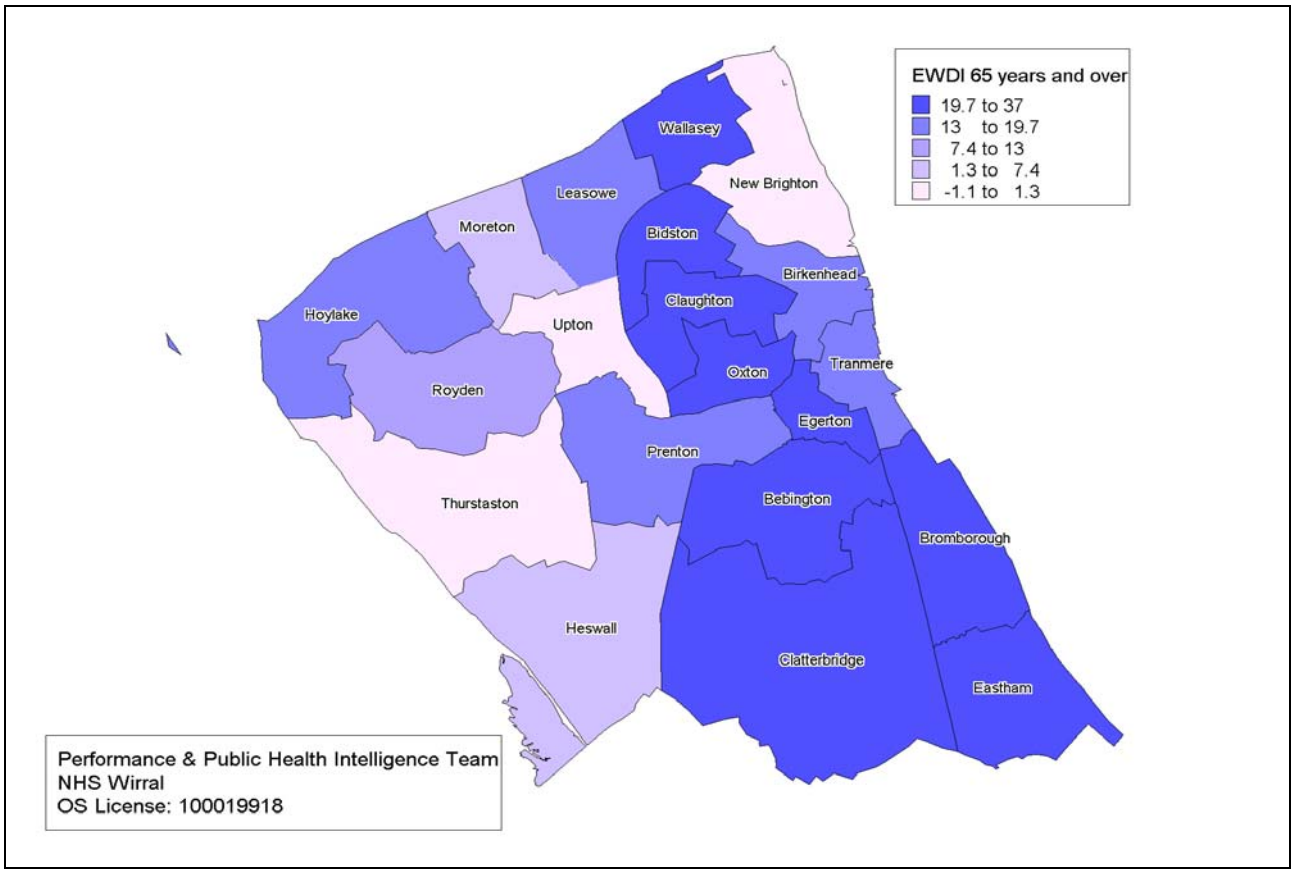
Source: ONS Annual Deaths Table, 2010 and Index of Multiple Deprivation 2010

Excess winter deaths and census wards

There are large variations in excess winter deaths for 65+ year olds and census wards.

- Claughton ward has the highest EWDI for 65+ year olds with 36.9%
- Upton ward has the lowest excess winter death index for 65+ year olds with -1.1%
- Heswall, one of the least deprived wards in Wirral experienced a 49% reduction in EWDI from 14.3% in 2003-2008 down to 7.4% in 2004-2009 in 65+ year olds
- Birkenhead EWDI has reduced by more than half (55%) compared to previous pooled years (2003-2008) with an index of 24.6% to 11% for 2004-2009 for all ages
- Thurstaston has reduced significantly by 86% compared to the previous year (2003-2008) in all ages

Figure 6: Excess winter death index for 65+ year olds by ward in Wirral, 2004-09 pooled



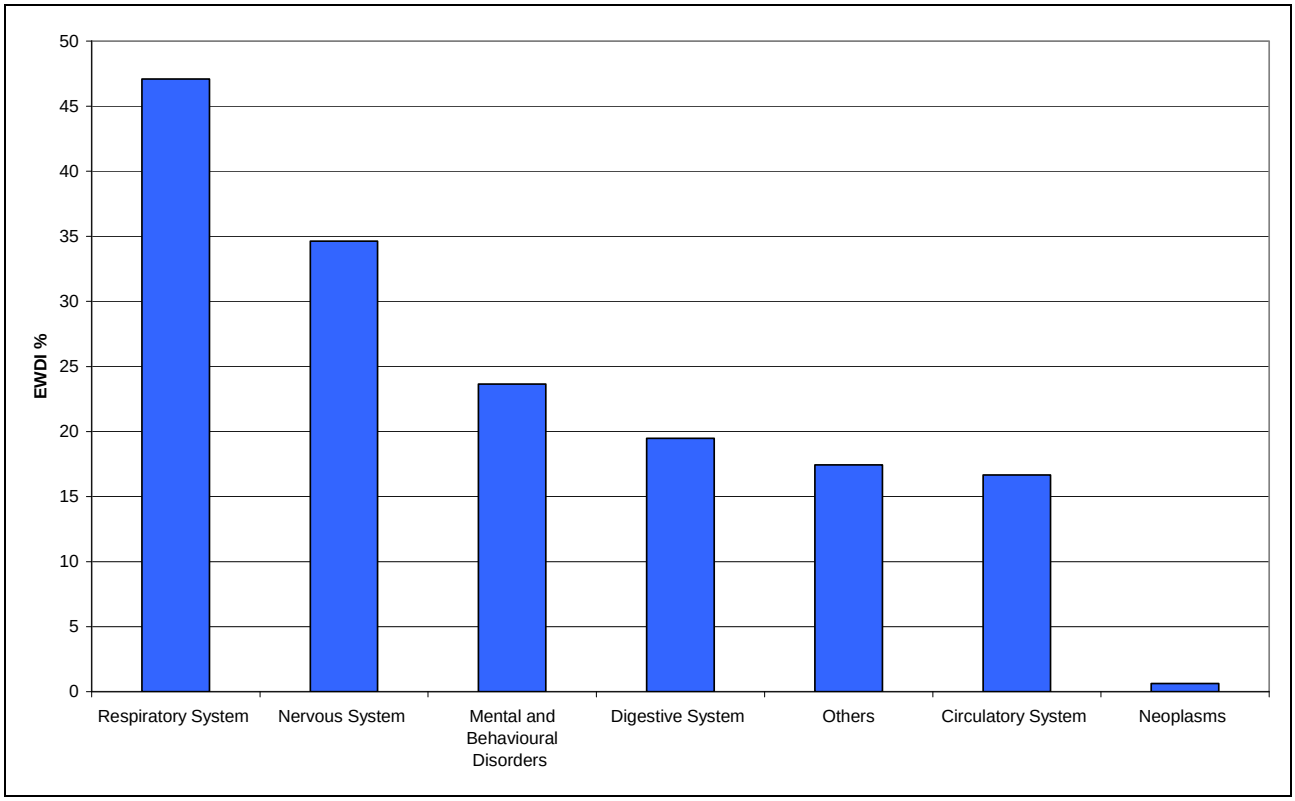
Source: ONS Annual Deaths, 2004-2009

Conditions contributing most to Excess Winter Deaths in Wirral

The most common causes of excess winter deaths are respiratory conditions followed by circulatory conditions. On average, in the period 2004-2009 in Wirral there were approximately 352 excess winter deaths from respiratory diseases and 320 excess winter deaths from circulatory diseases (Figure 7).

The EWDI (Excess Winter Deaths Index) for respiratory deaths is higher than any other cause of death at 47.1% followed by nervous system at 34.6%.

Figure 7 – Excess winter deaths index by underlying cause of death in Wirral, 2004-2009 pooled



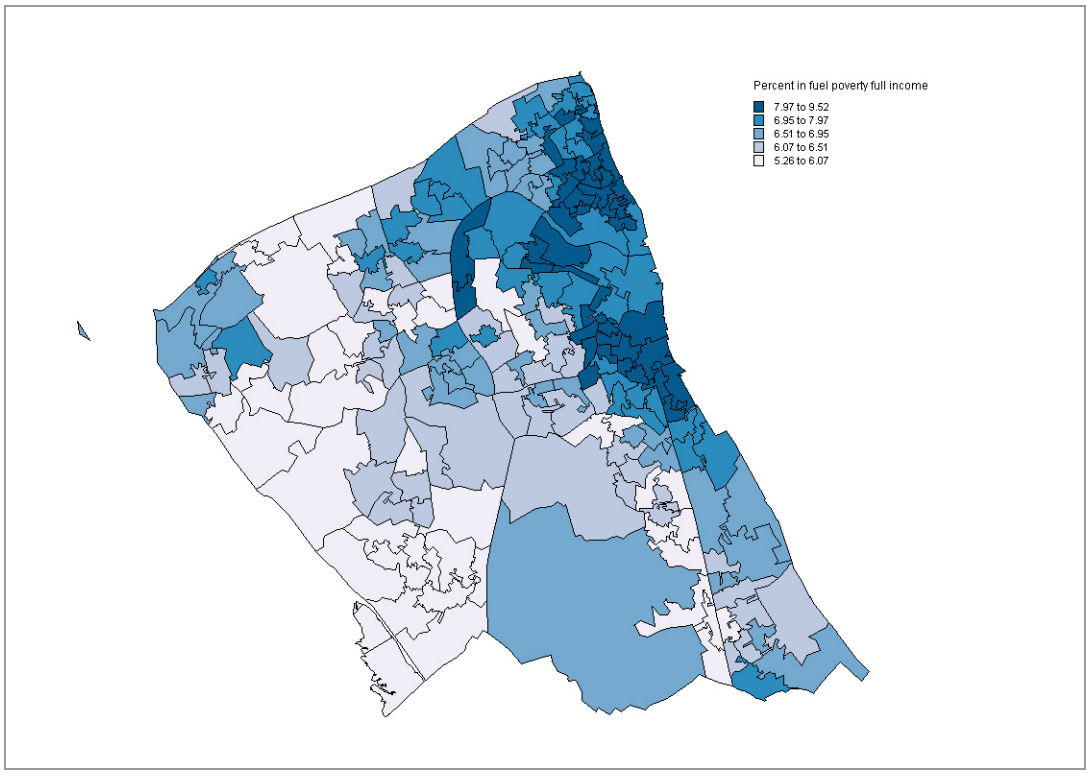
Source: ONS Annual Deaths Table, 2010

Fuel Poverty

The Centre for Sustainable Energy and the University of Bristol has produced a new poverty fuel indicator (FPI) to predict the incidence of fuel poverty in small areas across England [7]. The ability to target households suffering fuel poverty is vital to meeting the Government's objective of eliminating fuel poverty in England. The link between poor thermal efficiency and ill health is well documented [8], so any analysis of excess winter deaths should include information on fuel poverty.

Figure 8 illustrates fuel poverty in Wirral by LSOA. Darker colours represent areas with a higher percentage of households in fuel poverty.

Figure 8 – The distribution of FPI across the lower super output areas in Wirral

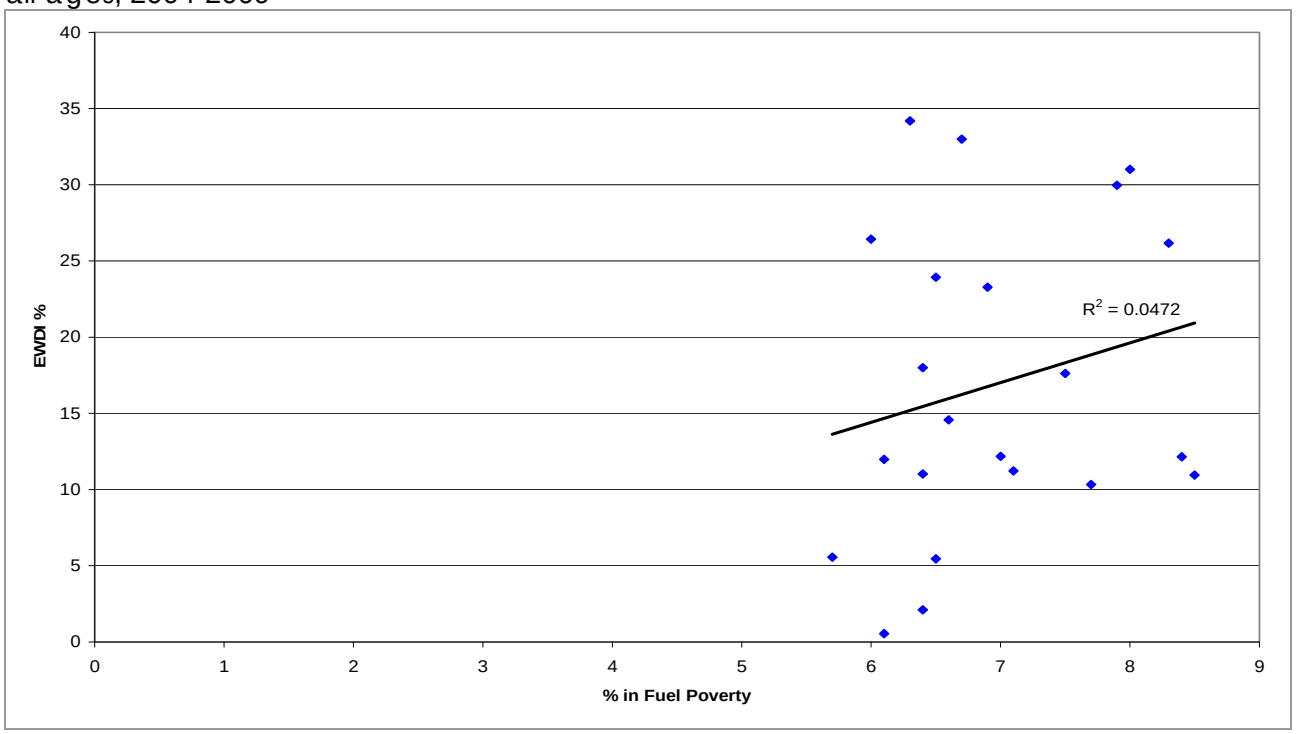


Source: Public Health Intelligence Team, NHS Wirral OS License 10019918

Fuel poverty and excess winter deaths index

The relationship between excess winter deaths and fuel poverty is unclear. There is a weak correlation between the excess winter death index and fuel poverty (r=0.22) (Figure 9).

Figure 9: Correlation between fuel poverty and excess winter deaths index (ONS wards) for all ages, 2004-2009



Source: ONS Annual Deaths Table, 2009 and FPI

Key Messages

- In 2008-09, the excess winter deaths index for Wirral was lower than the regional and national averages
- Deaths from respiratory and circulatory diseases are responsible for much of the increase in deaths seen during the winter months
- Excess winter deaths index is highest for females and older people. In Wirral, there are large variations in excess winter deaths for over 65 year olds
- The relationship between deprivation, housing conditions or fuel poverty and excess winter deaths is unclear. Outdoor cold stress has been independently associated with high excess winter mortality and should be considered in any interventions to reduce winter deaths.

Current gaps in the data and information

- Direct measures of housing and/or social conditions
- Link between individual persons dying in winter and underlying health conditions
- Link between individual persons dying in winter and outdoor temperature

Additional reading

- NHS Wirral review of the evidence on excess winter deaths: http://info.wirral.nhs.uk/document_uploads/evidence-reviews/ExcessWinterDeathsReview_4080b.doc
- Office for National Statistics (ONS) report: http://www.statistics.gov.uk/cci/nugget.asp?id=574
- Joseph Rowntree Foundation report, 'Cold comfort': http://www.jrf.org.uk/sites/files/jrf/jr101-determinants-winter-deaths.pdf

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