### Key messages
- Prevention of winter deaths is best achieved by improving flu immunisation rates and increasing the energy efficiency of households to achieve better indoor temperatures.
- Due to the variation in flu strains it is important to target flu jabs in the under 65s at risk groups, including pregnant women, as well as the over 65s. There is huge variation across Cheshire East; GP practices vary from 32.8% to 70.9% within the at risk groups and 63.2% to 83.3% in the 65s and over.
- Raise the importance of flu vaccination for care staff, particularly in care homes to help reduce the risk of outbreaks.
- Individual circumstances impact on a person’s vulnerability to winter mortality and this needs to be considered alongside the geographical areas already identified by the measures of fuel poverty, excess winter deaths or Winter Mortality Index (WMI).
- Develop a better predictor of winter deaths based on seasonal flu uptake and energy efficiency to enable targeted interventions and monitor success.
- Promote self-care to enable individuals to cope with cold temperatures and winter well-being across Cheshire East.

### Excess Winter Deaths
- More people die in the winter than in the summer. Excess winter deaths represent the above average mortality that is typically seen between December and March. These deaths are mainly caused by influenza or by cold temperatures.
- Cheshire East, and England as a whole, had a higher than average number of excess winter deaths in 2014/15.
- In 2013/14 there had been a lower than average number of deaths.
- 2015/16 estimated 231 excess deaths back in line with average trends.

---

**Excess Winter Deaths**

These figures represent the numbers of excess deaths in Cheshire East each year.

Cheshire East previously had higher levels of excess winter deaths than England in six out of seven years.
The majority of additional winter deaths are caused by stroke, heart disease, respiratory diseases and dementia and Alzheimer's disease.

Of the 231 excess winter deaths in 2015/16:

- 32% (75 deaths) respiratory
- 15% (36 deaths) circulatory
- 16% (37 deaths) dementia and Alzheimer's disease.

Variations across different age groups are shown on page 5.

The table below shows the diseases that contribute most to excess winter deaths. The monthly figures show the true difference as the number of months in the winter period is half the number of months that make up the summer period.

### Number of deaths (all ages), Cheshire East 2015/16

<table>
<thead>
<tr>
<th></th>
<th>2015/16</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Winter = December 2015 to March 2016</td>
</tr>
<tr>
<td></td>
<td>Summer = August to November 2015 and April to July 2016</td>
</tr>
<tr>
<td></td>
<td>Total Winter deaths (=monthly)</td>
</tr>
<tr>
<td>Respiratory</td>
<td>230 (58)</td>
</tr>
<tr>
<td>Circulatory</td>
<td>328 (82)</td>
</tr>
<tr>
<td>Dementia and Alzheimer’s disease</td>
<td>198 (50)</td>
</tr>
<tr>
<td>Other Causes</td>
<td>653 (163)</td>
</tr>
<tr>
<td><strong>Total deaths</strong></td>
<td><strong>1409 (352)</strong></td>
</tr>
</tbody>
</table>

- Respiratory diseases have a marked seasonal effect, with 48% more people dying from respiratory disease in the winter of 2015/16 than in the non-winter months. Although the number of excess winter deaths due to respiratory disease is considerably lower than the 116 excess deaths in the previous year, it remains the major contributor accounting for a third of all excess winter deaths.
- As deaths from circulatory diseases remain high throughout the year, the seasonal effect is not as large. 12% more people died from circulatory diseases in the winter than during the non-winter months.
- Dementia and Alzheimer’s disease was the leading cause of death in 2014/15 with 80% more people dying in the winter than during the non-winter months. This reduced in 2015/16 to 22% but still accounted for 16% of all excess winter deaths (37 out of 231 excess deaths). The reason for the seasonality is unclear, but these individuals are more vulnerable in winter.

There were an estimated 231 excess deaths in the winter period of 2015/16, representing 19.6% more people dying in the winter compared to the non-winter months. The number of EWDs has reduced by a third and is now closer to the 5-year average (2011/12 to 2015/16) of 233. This significant decrease from 2014/15 is due to the higher than average numbers of EWDs in 2014/15 rather than a unusually low EWD in 2015/16. This confirms that the increase last year was due to general fluctuations and not the start of an upward trend.

Males are most affected by excess winter mortality in Cheshire East; of the 231 EWD in 2015/16, 54% were males and 53% were females. This is different to the national picture and is in part due to the larger number of excess winter deaths in males under 65 in Cheshire East during 2015/16.

Local and national variations in excess winter deaths
Cold temperature and levels of influenza illness are both predictors of excess winter mortality. The relationship between excess winter deaths and temperature is complex. A warmer winter than average during 2015/16 has seen excess winter deaths drop back to average trends.

Although mortality does increase as it gets colder, temperature only explains a small amount of the variance in winter mortality. High levels of excess winter deaths can occur during relatively mild winters. In fact European countries with milder climates experience high levels of excess winter deaths. People living in milder climates take fewer precautions against the cold and tend to have less thermal efficient homes.

Colder temperatures can lead to increased blood pressure in older people, can cause thickening of the blood, which can lead to thrombosis, causing a stroke or heart attack. Cold also lowers the immune system’s resistance to respiratory infections.

Cold temperatures did not play a significant part in 2015/16 as the mean monthly temperature was above average from November 2015 through to February 2016, with a particularly high average temperature in December.

There was also an unusual peak in mortality on the 20th July 2016 locally, matching a similar peak nationally on the 19th July. The peak corresponds to higher than average temperatures. Increased daily deaths in non-winter months can impact on the calculation of excess winter deaths and can mask high mortality in winter months.

The predicted rising average temperatures caused by climate change will mean that the balance between winter and summer deaths may shift in the future and the current calculation of excess winter deaths may not be adequate. Those likely to be most vulnerable to the health impacts of climate change are those already deprived by their level of income, quality of homes, and their health and are more likely to live in fuel poverty. Vulnerability to cold weather will still remain a significant issue as the population ages. More information on the direct and indirect health impacts of temperature can be found in the Marmot Review Team report ‘The Health Impacts of Cold Homes and Fuel Poverty’ (May 2011).

The level of influenza illness in the population increases in the winter. Influenza was the main factor behind many of the 231 excess deaths that occurred during the winter of 2015/16. The impact of influenza on excess winter deaths within each season is determined by the prominent strain of influenza virus and the effectiveness of any vaccination programme.
The last pandemic (worldwide illness due to a major change in the type of influenza) occurred in the summer of 2009. The winter of 2010/11 saw very high levels of influenza illness. Despite this, excess winter mortality was higher in 2014/15 than in 2010/11. The level of influenza in 2015/16 were similar to that reported in 2014/15. Despite the similarity in level, excess winter mortality was much lower in 2015/16 than in 2014/15. This is likely related to the prominent strain of influenza virus in each of the two seasons.

The predominant influenza strain A(H3N2) in 2014/15 was particularly virulent among the elderly and was also associated with several outbreaks in care homes locally. This together with the fact that the flu jab vaccine was much less effective than normal contributed significantly to the increase in winter deaths that year.

Influenza is a respiratory disease caused by a viral infection. It affects the lungs and airways, and can cause potentially life threatening complications, such as bronchitis or secondary bacterial pneumonia. Vulnerable groups, for example older people, those with underlying health problems, and pregnant women are particularly at risk of developing these complications.
Of the estimated 231 excess winter deaths in 2015/16, the majority occurred among people aged 85 and over; with an estimated 102 excess winter deaths (44%) in this age group compared with 69 excess deaths in people aged 75 to 84, 17 excess deaths in people aged 65 to 74, and 43 excess deaths in people aged under 65. When looking at the Excess Winter Deaths Index, which shows the ratio of winter to summer deaths, the biggest difference in 2015/16 was in the under 65 age group.

This may be in part due to the predominant influenza strain in 2015/16 having a particularly noticeable impact on younger people and children; 29% more people died in the winter months in the 0-64 age group than during the non-winter months. 25% of all excess winter deaths in this younger age group were due to respiratory disease. This highlights the importance of encouraging flu vaccination in the under 65s at risk groups as well as the over 65s (see page 6).
Seasonal flu vaccination

The National Advanced Service for flu vaccination in community pharmacies was commissioned again by NHS England during the 2016/17 flu season. Over 6300 eligible patients from GP practices in the Cheshire East area were vaccinated by community pharmacists, and are included in the table.

Both maternity units in Cheshire East also offer flu vaccine to pregnant women. 90 women were vaccinated by East Cheshire Trust, and 21 by Mid Cheshire Hospital. Plans are in place to improve the numbers vaccinated by Mid Cheshire maternity services.

We need to continue to focus on increasing the uptake of flu jabs amongst pregnant women and other at risk groups across the borough, and particularly in Crewe town.

Although uptake for those aged 65 and over in Cheshire East is above 75%, there is however wide variation between practices – from 71.6% to 83.3% amongst practices in Eastern Cheshire CCG, and from 63.2% to 80.3% amongst practices in South Cheshire CCG.

There is a continued need to focus vaccine uptake for those aged from 6 months to under 65 years in at risk groups, particularly those at highest risk of mortality from flu (e.g. immunosuppression). South Cheshire CCG practices uptake for all those in at risk groups varies from 32.8% to 70.9% - the highest uptake across Cheshire East. In Eastern Cheshire CCG it varies between 45.3% and 65.5%.

The trend graphs below show Cheshire East’s uptake (blue line) compared to the England average (black line) over previous years. In the 2014/15 flu season there was negative publicity about the effectiveness of that years flu vaccine, which led to a fall in uptake in at risk groups. The green/red dots indicate where Cheshire East is above/below target; 75% for those aged 65 years and over, 55% for at risk individuals (aged 6m to 64y).

Vaccine uptake locally is higher than the England average and has been over the 75% target for those aged 65 and over for many years. Eastern Cheshire CCG has a slightly better uptake than South Cheshire CCG.

Vaccine uptake for 2016/17 improved following a national fall in 2015/16, although it has not returned to levels seen previously. Eastern Cheshire and South Cheshire CCGs continue to be highest performers across the Cheshire, Warrington and Wirral area for those aged 65 years and over, with Eastern Cheshire CCG achieving the 4th highest uptake for over 65 year olds across England.

Charts adapted from Public Health Outcomes Framework trend charts Excess Winter Deaths (page 6 of 12)
In 2012 it was recommended that the annual flu vaccination programme be extended to children, as they are the key spreaders of the illness to older age groups and those at risk. Initially all children aged 2 and 3 years old were included, and in 2014 the vaccination programme was extended to 4 year olds (all vaccinated by general practices). In the autumn of 2015 children aged 5 and 6 years old (in School Years 1 and 2) were also included, with Year 3 children added in 2016 and Year 4 to be included from 2017.

### Flu vaccine uptake by GP cluster, 2016/17 (local data)

<table>
<thead>
<tr>
<th>Practice Cluster</th>
<th>All Aged 2 years</th>
<th>All Aged 3 years</th>
<th>All Aged 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Patients registered</td>
<td>No. vaccinated</td>
<td>% uptake</td>
</tr>
<tr>
<td>Nantwich and Rural</td>
<td>303</td>
<td>137</td>
<td>45.2</td>
</tr>
<tr>
<td>Crewe town</td>
<td>834</td>
<td>312</td>
<td>37.4</td>
</tr>
<tr>
<td>SMASH</td>
<td>669</td>
<td>284</td>
<td>42.5</td>
</tr>
<tr>
<td>South Cheshire CCG total</td>
<td>1806</td>
<td>733</td>
<td>40.6</td>
</tr>
<tr>
<td>Congleton &amp; Holmes Chapel</td>
<td>423</td>
<td>262</td>
<td>61.9</td>
</tr>
<tr>
<td>Macclesfield</td>
<td>667</td>
<td>359</td>
<td>53.8</td>
</tr>
<tr>
<td>Bollington, Poynton and Disley</td>
<td>300</td>
<td>178</td>
<td>59.3</td>
</tr>
<tr>
<td>Chelford/AEdge/Wilm/Handforth</td>
<td>475</td>
<td>284</td>
<td>59.8</td>
</tr>
<tr>
<td>Knutsford</td>
<td>269</td>
<td>174</td>
<td>64.7</td>
</tr>
<tr>
<td>Eastern Cheshire CCG total</td>
<td>2134</td>
<td>1257</td>
<td>58.9</td>
</tr>
<tr>
<td>Cheshire East total</td>
<td>3940</td>
<td>1990</td>
<td>50.5</td>
</tr>
<tr>
<td>England</td>
<td>66180</td>
<td>257605</td>
<td>38.9</td>
</tr>
</tbody>
</table>

All practice clusters in South Cheshire CCG are achieving lower uptake than the Cheshire East average. Overall Cheshire East achieved 10% to 12% higher uptake than England as a whole, although there are very wide variations in different areas of the borough. There is also a wide inequality in vaccination rates, with 20% - 30% more of the 2-4 year old child population being vaccinated across Congleton and Holmes Chapel compared to Crewe town.

### Public Health England flu vaccination planning intentions for 2017/18:

- Practice level achievements to be shared with CCGs for dissemination to General Practice Managers (to highlight variation)
- Identify low uptake in at risk groups, by age and risk group, and develop targeted action plans
- Improve further the transfer of data from pharmacy delivered immunisations to General Practices
- Continue to support the contribution made by maternity services to vaccinate pregnant women, mainly in the hospital setting
- Closely monitor and support the extension of two additional cohorts into the children’s flu programme in schools in 2017/18

### Practice cluster data

The data used have been taken from Immunform surveys which use automatic extracts from practice systems. As the January 2017 extract did not include all practices, previous submissions have mainly been used to create cluster level uptake. Due to data quality concerns, one practice’s child vaccine uptake was excluded. As a result there are some differences compared to PHE published data for CCGs and Local Authorities.

Excess Winter Deaths (page 7 of 12)
Cold weather planning and response

There are two elements to the local planning to reduce the impacts of cold weather.

Firstly, within both Clinical Commissioning Group areas, A&E Delivery Boards are established to monitor and manage the patient flows into and out of the hospitals and support the hospitals in coping with the additional demands placed upon them.

Secondly, the Extreme Weather Planning Group (formerly the Winter Wellbeing Partnership), brings together Council officers and representatives from a wide range of public sector and community and voluntary sector organisations, to share information, join up service interventions and focus on improving the resilience of individuals and communities to better protect people from the impacts of extreme weather.

In addition the Council co-ordinates the formal Cold Weather Planning process and ensures that Cold Weather Alerts are widely circulated to relevant staff and partners to ensure that services for vulnerable people are appropriately prepared for spells of cold weather.

Cold weather health watch – four levels of response triggered by the Met Office

<table>
<thead>
<tr>
<th>Cold Weather Health Watch</th>
<th>Level 0</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Long Term Planning</td>
<td>Winter Action Programme</td>
<td>Severe winter weather is forecast</td>
<td>Severe winter weather is occurring</td>
<td>Major incident – emergency response</td>
</tr>
<tr>
<td>Trigger</td>
<td>All Year</td>
<td>Minimum stage of vigilance from 1st Nov. – 31st Mar.</td>
<td>Risk is 60% or above for either threshold to be breached</td>
<td>Cold weather is currently breaching either threshold</td>
<td>Cold weather is so severe/prolonged that effects extend outside the health and social care system</td>
</tr>
</tbody>
</table>
Improving warmth in homes

What is Fuel Poverty?
Under the Low Income High Cost definition, a household is considered to be fuel poor where:

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

The figure highlights an important issue - not all people who are income poor are also fuel poor. Reasons for this are many, but a primary one is that many income poor people are living in newer housing stock which is relatively energy efficient. Affordable heating then becomes achievable for families, no matter what their family income, provided they live in decent, well insulated and energy efficient homes.

Tackling fuel poverty requires a specific strategy, distinct from what is needed to tackle income poverty. The primary determinant of fuel poverty is the home itself. Homes which have high quality cavity wall and loft insulation, efficient central heating systems, draught-proofing, and double-glazing are least likely to create fuel poor residents, even when the residents themselves are in income poverty. These housing efficiencies will also improve health outcomes and are beneficial to the climate change agenda.

Based on the Low Income High Cost measure, there were an estimated 10% - around 16,000 of Cheshire East households - in Fuel Poverty in 2015, which is unchanged from the previous year’s figures. For comparison, the Cheshire West & Chester figure is also 10%, the North West figure is 12% and for England the figure is 11%. Priority areas for reducing fuel poverty include some urban areas in Crewe and Macclesfield, as well as a number of rural areas which are often not supplied by mains gas. The estimated level of Fuel Poverty in these areas has been consistently high, since the introduction of the Low Income High Cost measure in 2013.

Households with no central heating tend to be fuel poor as they rely on expensive and inefficient secondary heating systems. These households are likely to have a stronger likelihood of dampness and condensation than other homes. In 2011 there were 3,642 (2.3%) of households without central heating in Cheshire East. The majority, 2,586 (71%) were owner occupied households, 8% were social housing with the remainder (21%) being privately rented. The greatest concentration of households without central heating (35%) could be found in Crewe, with 1,263 households without central heating. Source: 2011 Census, table: LC4402EW, Office for National Statistics, Crown Copyright.

Locally there are advice services to help people to switch energy suppliers, manage fuel debt, check benefits, and access grants for boiler repairs and central heating. These include:

- Care & Repair, delivered by Cheshire East Council
- Save Energy Advice Line, delivered by Energy Projects Plus on behalf of Cheshire East Council
- Local Energy Advice Programme, delivered by Energy Projects Plus
- Community Agents, delivered by Cheshire Community Action on behalf of Cheshire East Council
- Energy advice programme, delivered by Eco Residential

Sources: Fuel Poverty – Low Income High Cost (LIHC), 2013, 2014, 2015, Department of Energy & Climate Change (DECC)

Limitations of the Fuel Poverty measure
Fuel Poverty is modelled using data from the annual English Housing Survey (EHS) which asks questions about people’s housing circumstances, household income and condition and energy efficiency. The Cheshire East data is based on approximately 100 surveyed households, then supplemented with other data. The sampling method used means that the samples in two consecutive years will not be independent and any year on year comparisons should be treated with caution. Also the calculation method for Fuel Poverty changed in 2013 so this restricts trend analysis.

The small sample of households used also makes any analysis extremely unreliable at small geographies.
Winter Mortality Index (WMI) and Fuel Poverty

The way excess winter deaths are calculated means that this measure is also extremely unstable at small geographies and strongly affected by fluctuations in deaths in the non-winter months. There appears to be no strong relationship between excess winter deaths and fuel poverty at a small area level within Cheshire East. This may in part be due to the way fuel poverty is constructed but also that vulnerable people such as the elderly are more susceptible to winter mortality, whereas fuel poverty affects all ages.

Analysis was undertaken to try to identify other geographical predictors of need. The following indicators were chosen to create a composite Winter Mortality Index (WMI):

Mortality from respiratory disease
- Residents aged 65-84
- Residents aged 85+
- Dementia prevalence
- Proportion of pensioners living alone
- Emergency hospital admissions for hip fractures

The composite Winter Mortality Index (WMI) was calculated for each area (Middle Super Output Area or MSOA) to help identify any areas of higher risk. The indicators are very ‘elderly focused’ as it was constructed to predict higher risk of excess winter deaths. This has led to the WMI exhibiting a slightly different pattern to fuel poverty. Some areas that are different include:

Areas of higher fuel poverty but low WMI
- Deprived areas of Crewe – have much lower proportion of elderly residents and prevalence of dementia. However, do feature on some WMI indicators – notably older people living alone, respiratory disease and hip fractures.
- Rural areas around Nantwich – mid ranking for dementia, hip fractures and respiratory disease. Rank very low for those aged over 85 and pensioners living alone.

Areas of high WMI but low fuel poverty
- Congleton East and South – high number of older residents (both those aged 65-84 and the over 85s) as well as the emergency admissions for hip fractures.

Modelling housing energy efficiency ratings (EPC) or energy efficiency improvements, such as cavity wall insulation, modern central heating and double-glazing, plus flu immunisation uptake may provide more insight.
Low indoor temperatures have been shown to be associated with poor health and excess winter mortality, as well as a variety of social and economic problems for residents. The World Health Organization (WHO) recommend that indoor temperatures should be kept above 18 degrees. The length of exposure to cold temperatures increases the risk of harm to health. Better insulation and energy efficiency means that houses are easier to heat and keep warm, potentially resulting in more stable indoor temperatures and reducing the impact of outdoor temperatures on the residents' health.

A greater proportion of homes in England now have measures to improve energy efficiency compared with 1996. In 2013, 80% of homes had full double glazing, up from 30% in 1996. More than a third (37%) of homes had 200mm or more of loft insulation in 2013, up from 3% in 1996. Approximately 9.6 million dwellings had cavity wall insulation in 2013, up from less than 3 million in 1996.

In Cheshire East
40% of homes have 200m or more of loft insulation
73% of homes with cavity walls have been insulated
82% of homes in Cheshire East have double glazing
98.2% of homes have central heating
82% of central heating systems are mains gas
99.3% of 0-15 year olds live in centrally heated homes

Data source: Uno database, 2015, Census, 2011

There have been a number of schemes aimed at reducing fuel poverty;

The Cold Weather Plan for England aims to prevent avoidable harm to health by alerting people to the negative health effects of cold weather. The plan sets out a series of actions to be taken by the NHS, social care and other agencies throughout the year, and 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 Met Office issues cold weather alerts from November to March to support the Cold Weather Plan. The ‘Keep Warm Keep Well’ booklet provides advice on staying well during cold weather, for example healthy lifestyle, heating, flu vaccinations, and making sure that people know about all the benefits and services to which they are entitled.

The Energy Company Obligation was introduced in January 2013 to reduce the UK’s energy consumption and support people living in fuel poverty by funding home heating and insulation. This scheme was extended in April 2017 to better target people in fuel poverty, allowing energy suppliers and local authorities to set local eligibility criteria, such as low income and health conditions which are exacerbated by cold and damp housing.

Another policy aimed at helping the most vulnerable heat their homes is the Warm Home Discount scheme. This is a one-off electricity bill discount for people on a low income who meet the eligibility requirements. In addition, there are a number of other policies aimed at tackling excess winter mortality including winter fuel payments and cold weather fuel payments.
Opportunities for improvement / future developments
Although a lot of work has been ongoing to reduce the impacts of cold weather on individual's health and wellbeing, there is more to be done. In particular we need to be better at identifying vulnerable individuals and their households and working with them throughout the year to build their resilience for winter.

The Winter Planning arrangements have been benchmarked against the NICE Guidance on ‘Excess Winter Deaths and Morbidity and the Health Risks Associated with Cold Homes’ published in March 2015, to ensure that we are learning from best practice.

We are also continuing to work with partners to identify the local assets that can assist people during the winter and to improve our communications, particularly those that need to target our more vulnerable residents. We will also look to build upon CCG initiatives to target people with respiratory related ill health, offering them additional support through GPs to minimise the impacts of cold weather upon their health.

Promoting the uptake of flu vaccination will also continue to be a priority, including for front line care staff especially those working in care homes, as highlighted at the North of England flu event in June 2017. Each winter, flu outbreaks occur in care homes affecting both residents and staff, with 7 outbreaks occurring in Cheshire East during the winter of 2016/17. Vaccination of care home staff helps to protect vulnerable residents, as well as other staff, visitors, their families and themselves but little information is available regarding vaccine uptake. Monitoring of this could be included as part of quality visits to care homes, and/or within service specifications/contracts with care homes.

Version control

<table>
<thead>
<tr>
<th>Publication date</th>
<th>Changes made</th>
<th>Sign-off</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 2017</td>
<td>Refresh of March 2016 Excess Winter Death section</td>
<td>Guy Kilminster (Public Health)</td>
</tr>
</tbody>
</table>

JSNA section contributors: Rhonwen Ashcroft, Sara Deakin and Helen John (Public Health), Pauline Jones (Public Health England), Karen Whitehead (Strategic Housing & Intelligence), Sophie Thorley (Energy Commissioning), James Rounce (Research and Consultation), Extreme Weather Planning Group

What we don’t know but would like to know...
- What will be the impact of welfare benefit reforms and the levels of debt that householders face on their ability to keep their homes warm?
- Where are our most at-risk individuals?
- What the uptake of flu vaccine is in front line care staff, particularly those working in care homes
- Develop a better predictor of winter deaths to enable targeted interventions and monitor success (e.g. modelling household energy efficiency information and seasonal flu vaccination uptake)
- More reliable local survey data about energy efficiency measures and factors associated with Fuel Poverty would allow improved understanding for small geographies. There may be a household survey in 2019 conducted by the council which would enable this.