



Public Health  
England

Protecting and improving the nation's health

# Data sources to support local services tackling health risks of cold homes

## About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-leading science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

Public Health England  
Wellington House  
133-155 Waterloo Road  
London SE1 8UG  
Tel: 020 7654 8000  
[www.gov.uk/phe](http://www.gov.uk/phe)  
Twitter: [@PHE\\_uk](https://twitter.com/PHE_uk)  
Facebook: [www.facebook.com/PublicHealthEngland](https://www.facebook.com/PublicHealthEngland)

Prepared by: Extreme Events and Health Protection, Public Health England.  
For queries relating to this document, please contact: [extremeevents@phe.gov.uk](mailto:extremeevents@phe.gov.uk)



© Crown copyright 2019

You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v3.0. To view this licence, visit [OGL](https://www.ogil.io). Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

Published: January 2019  
PHE publications  
gateway number: 2018724

PHE supports the UN  
Sustainable Development Goals



# Contents

About Public Health England	2
Glossary	4
1. Introduction and aims of this guidance	5
2. Background	6
3. Estimating the scale of the problem	8
4. Identifying vulnerable individuals	21
5. Combining vulnerability and housing datasets	25
Conclusion	27

## Glossary

BEIS	Department for Business, Energy and Industrial Strategy
CCG	Clinical Commissioning Group
COPD	Chronic Obstructive Pulmonary Disease
DWP	Department of Work and Pensions
ECO	Energy Company Obligation
EHS	English Housing Survey
EPC	Energy Performance Certificate
EWD	Excess Winter Deaths
HHSRS	Housing Health and Safety Rating System
IMD	Index of Multiple Deprivation
LA	Local authority
LSOA	Lower Super Output Area
MECC	Making Every Contact Count
MSOA	Middle Layer Super Output Area
NEED	National Energy Efficiency Data-Framework
NICE	National Institute for Health and Care Excellence
ONS	Office of National Statistics
PHOF	Public Health Outcomes Framework
PRS	Private Rented Sector
QOF	Quality Outcomes Framework
SAP	Standard Assessment Procedure

# 1. Introduction and aims of this guidance

Living in a cold home has significant and demonstrable direct and indirect health impacts. There is strong **evidence that shows** it is associated with poor health outcomes and an increased risk of morbidity and mortality for all age groups.

People live in cold homes often due to fuel poverty. A household is considered to be fuel poor if it has higher than typical energy costs and would be left with a disposable income below the poverty line<sup>1</sup>. Fuel poverty is driven by 3 main factors: household income, high or unmanageable energy costs and the energy efficiency of a home.

This guidance aims to help local areas to implement and monitor their progress towards preventing deaths and illness associated with cold homes, as recommended by both the **Cold Weather Plan for England** and **NICE Guideline 6: Preventing excess winter deaths and illness associated with cold homes**.

It is aimed at public health teams, housing professionals and others who have a role at a local level in reducing harm due to cold homes.

The guidance will:

- help local areas to estimate the number of people who may be at risk of cold home-related death and illness in a particular population, using a range of housing, vulnerability and health indicators
- help local areas to identify individuals who may be at risk of experiencing health effects associated with living in a cold home, using data on housing and personal characteristics, as well as opportunistic approaches

---

<sup>1</sup> Annual Fuel poverty statistics report 2018, The Department for Business, Energy and Industrial Strategy:  
[assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/719106/Fuel\\_Poverty\\_Statistics\\_Report\\_2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/719106/Fuel_Poverty_Statistics_Report_2018.pdf)

## 2. Background

### 2.1 Health risks of cold homes

It is estimated that “**excess winter deaths in the coldest quarter of housing are almost 3 times as high as in the warmest quarter**” with 21.5% of all excess winter deaths attributable to the coldest quarter of housing.

One of the major contributing factors to a person living in low indoor temperatures in winter is the inability to heat their home affordably (ie to be in fuel poverty). Other factors include a lack of awareness of the effect of cold on health, as well as **situational, attitudinal or behavioural factors** including personal values such as stoicism or thrift.

**Groups who are more vulnerable** to health problems associated with cold homes and/or who may have less contact with health services include:

- people with cardiovascular conditions
- people with respiratory conditions (in particular, chronic obstructive pulmonary disease (COPD) and childhood asthma)
- people with mental health conditions
- people with disabilities
- older people (65 and older)
- young children (under 5)
- pregnant women
- people on a low income
- people who have attended hospital due to a fall
- people who move in and out of homelessness
- people with addictions
- recent immigrants and asylum seekers

### 2.2 The Cold Weather Plan for England

**The Cold Weather Plan for England** is a framework intended to protect the population from harm to health from cold weather, and gives advice to help prevent the major avoidable effects on health during periods of cold weather in England.

The plan recognises that this is not something that can be tackled in the winter alone and requires a long-term, year-round strategic approach by all relevant sectors to assess needs and to commission, plan and implement interventions. Although action to protect health on the coldest days remains

important, the largest proportion of the burden of cold-related ill-health occurs at moderate outdoor winter temperatures (from 4-8°C) as days with temperatures at this level are far more frequent. Therefore, shifting the emphasis to level 0 (year-round planning) and level 1 (winter preparedness and action) is expected to have the greatest impact on excess winter morbidity and mortality, and in-turn help reduce winter pressures on the NHS and social care services.

The **strongest evidence for the effectiveness of interventions is the impact of domestic heating and energy efficiency improvements**. There is evidence from a number of high-quality randomised controlled trials and other controlled observational studies, both from the UK and other industrialised countries (notably New Zealand), that indicates heating and energy efficiency interventions offer potential health benefits in terms of chronic disease (particularly respiratory disease), improved mental wellbeing, reduced health service use and school/work absence.

### 2.3 NICE Guideline 6: Preventing excess winter deaths and illness associated with cold homes

NICE Guideline 6 contains 12 recommendations on how to reduce the risk of death and ill health associated with living in a cold home, accompanied by 6 'Quality Statements', which are designed to contribute to improvements in:

- excess winter deaths
- morbidity
- fuel poverty
- exacerbations of current health problems
- timely discharge from hospital
- rates of hospital admissions and readmissions

This resource focuses primarily on NICE Recommendations 2, 3 and 4, ie:

- identifying people vulnerable to health problems associated with a cold home
- single-point-of-contact health and housing referral service
- asking people about keeping warm at home

The 6 quality statements are each accompanied by quality measures, with suggested data sources, and structure, process and outcome measures where appropriate. The majority of these rely on local data collection but the guidance does not specify data requirements. This guidance outlines some of the data which may be used to identify need and record progress against these measures.

## 3. Estimating the scale of the problem

In order to deliver a single point of contact health and housing service as recommended by NICE, local areas need to understand the level of need for this service at the local level. This estimate can also provide a baseline against which local areas can monitor their progress in addressing this need.

Estimating how many people may be in need of a service has 3 main components:

1. Understanding how many people may be vulnerable due to health or personal circumstances.
2. Understanding how many homes may be cold.
3. Combining this information to provide an estimate of the scale of the problem.

This is particularly challenging as ‘vulnerability’ can be a broad term, and a person’s vulnerability to living in a cold home can be transient and change over time. In the same way, there is no standardised definition for what constitutes a ‘cold home’ and the experience can be subjective.

However, PHE’s [Cold weather plan](#) notes that heating homes to at least 18°C (65F) in winter poses minimal risk to the health of a sedentary person, wearing suitable clothing. The 18°C (65F) threshold is particularly important for people 65 years and over or with pre-existing medical conditions; having temperatures slightly above this threshold may be beneficial for health.

### 3.1 Estimating the number of people who may be vulnerable due to health or personal characteristics

#### 3.1.1 Excess winter deaths

The [Office for National Statistics](#) (ONS) defines excess winter deaths as the difference between the number of deaths which occurred in the winter months (December to March), and the average number of deaths during the preceding 4 months (August to November) and the subsequent 4 months (April to July). ONS publish national and regional excess winter death statistics for England and Wales annually each November. These figures are based on provisional figures for the preceding winter and final figures for the winter before that. Data are available for each year, broken down by age, gender and underlying cause of death. A 5-year average is also provided.



The **Public Health Outcomes Framework** (PHOF) includes the Excess Winter Deaths Index as an indicator under the “Healthcare and premature mortality” domain. The indicator is the ratio of extra deaths from all causes that occur in the winter months compared with the expected number of deaths, based on the average number of non-winter deaths, published for all ages and for those aged 85 years and over. These figures are available as single year and as a three year aggregate.

The Excess Winter Death index is readily available so is frequently used as a broad indicator for the size of the problem. However, its usefulness in guiding specific local public health action is limited as it provides little insight into local drivers of excess winter deaths. For example, it does not distinguish between the relative impacts of seasonal influenza and cold on excess winter mortality. Therefore, it cannot be used to estimate the size of the population who may be vulnerable due to a cold home. Nor can it be used to monitor progress due to wide annual fluctuations, which are related to both weather and the circulation of respiratory viruses.

### 3.1.2 Vulnerable populations

NICE identifies a number of population groups as being particularly vulnerable to the health effects of cold homes. Local areas can use data from PHOF to estimate the number of individuals who are vulnerable due to each of these factors. However, many individuals may have multiple vulnerabilities, so it would be inappropriate to simply aggregate the number of individuals in each group to estimate the total size of the vulnerable population as this would result in an inflated estimate of the total number.

Data sources which could be used to estimate the size of each of the vulnerable population groups identified by NICE at local authority level are available in **Table 1**. **Table 2** sets out potential sources of publicly available data on the size of each vulnerable population at lower levels of geography (eg from **Local Health** or **Quality Outcomes Framework** (QOF)). Most GP practices will also hold records of the number of patients registered with each of these vulnerabilities. The number of people eligible for a free flu vaccination may also serve as a useful proxy for identifying the size of the group who would be at risk if they lived in cold homes.

Data on the number of recipients of specific benefits eg Attendance Allowance and Personal Independence Payments is available at local authority, Middle Layer Super Output Area (MSOA), Lower Level Super Output Area (LSOA) and Census Output Area from the Department of Work and Pensions (DWP) **Stat-Xplore portal**. Such data could help to estimate the

number of individuals with disabilities and/or on low income at lower levels of geography than available via **Local Health**. However, it is important to note that the **Committee on Fuel Poverty** have warned that approximately a third of fuel poor population are not captured by using the benefits system as a proxy for eligibility.

### 3.1.3 Other sources of population data

Further sources of data that may be used to estimate the size of the population who may be vulnerable to cold home-related health effects.

The Office for National Statistics:

**Census data 2011**. Local authority datasets include population age structure and rates of long-term health problems which can support an estimate of vulnerability locally. Other data such as accommodation type, tenure, number of households and size, place of birth, and household composition. This information can provide a broad indication of housing-related risk. For example, evidence indicates that new built properties are better insulated, that the privately rented sector may have poorer standards of heating/insulation and that single parent families may be more prone to fuel poverty.

**Population projections for England** from 2014 to 2039 by sex in 5 year age groups. Available at local authority and CCG level to assess the size of the population who may be vulnerable due to their age, ie those aged under 5 years, and 65 years and older.

**Household projections**, including 'headship rates', from which the number of households headed by an older person can be derived, by local authority, in 10 year age bands from 65-74, 75-84, and 85 years and over.

**Hospital Episode statistics:**

Standard analyses are published annually at a range of spatial levels including CCGs, NHS Trusts and area teams, and users can request bespoke data extracts if required. Diagnoses for all NHS hospital admissions, outpatient appointments and A&E attendances in England could be used to determine how many admissions are due to conditions which may be exacerbated by living in a cold home; choosing which health conditions to focus on may be guided by relevant experts in the field, such as public health colleagues, or NICE guidelines.

**NHS RightCare Intelligence products:**

The link between cold homes and ill health are not addressed specifically, however the packs may be of use in identifying priority groups locally.

Local authorities hold individual-level information on vulnerabilities:

Eg households exempt from council tax (people on low income), and those who are registered for Assisted Bin Collections or Blue Badge Parking (people with disabilities). These could also be used as part of an assessment of the size of the population who may be vulnerable.

**Table 1: Data sources to identify the size of each vulnerable population within a local area**

Vulnerable Group identified by NICE	Indicator
<b>People with cardiovascular conditions</b>	<p><b>CHD:</b> The percentage of patients with coronary heart disease, as recorded on practice disease registers</p> <p><b>Stroke:</b> The percentage of patients with stroke or transient ischaemic attack (TIA), as recorded on practice disease registers (proportion of total list size)</p>
<b>People with respiratory conditions (chronic obstructive pulmonary disease and childhood asthma)</b>	<p><b>COPD:</b> The percentage of patients with COPD, as recorded on practice disease registers</p> <p><b>Asthma:</b> The percentage of patients with asthma, excluding those who have been prescribed no asthma-related drugs in the previous 12 months, as recorded on practice disease registers</p>
<b>People with mental health conditions</b>	<p>Estimated prevalence of common mental health disorders: estimated % of population aged 16-74 with any common mental health disorder</p>
<b>People with disabilities</b>	<p><b>Physical disabilities:</b> Adults (18-64) with physical disabilities supported by adult social care throughout the year per 100,000 population (RAP P1)</p> <p><b>Learning disabilities:</b> Adults (18-64) with learning disabilities supported by adult social care throughout the year per 100,000 population (RAP P1)</p>
<b>Older people (65 and older)</b>	<p>Percentage of people aged 60 and over living in income deprived households (Income Deprivation Affecting Older People Index).</p> <p>NB: mismatch between NICE definition (65+) and PHOF data (60+)</p>

Vulnerable Group identified by NICE	Indicator
Young children (under 5)	Percentage of children in low income families (children living in families in receipt of out of work benefits or tax credits where their reported income is < 60% median income) for u-16s only
Pregnant women	Birth rate per 1,000 females aged 15 to 44 years
People on a low income	Percentage of individuals not reaching a minimum income standard
People who move in and out of homelessness	Households in temporary accommodation per 1,000 households
People with addictions	<p><b>Alcohol:</b> Admission to hospital for mental and behavioural disorders due to alcohol</p> <p><b>Drugs:</b> Estimated prevalence of opiate and/or crack cocaine users per 1,000 population aged 15-64</p> <p><b>Tobacco:</b> Smoking Prevalence in adults - current smokers</p>
People who have attended hospital due to a fall	Age standardised rate of emergency hospital admissions for injuries due to falls in persons aged 65+ per 100,000 population
Recent immigrants and asylum seekers	Supported asylum seekers: rate per 10,000 population

**Table 2: Data sources to identify the size of each vulnerable population at smaller geographical areas**

<b>Vulnerable Group identified by NICE</b>	<b>Indicator publicly available at ward/MSOA level via Local Health</b>	<b>Publicly available GP-practice level data via Quality and Outcomes Framework (QOF): or National General Practice Profiles (NGPP):</b>	<b>Data likely to be held by individual GP practices (which could be aggregated)</b>
<b>People with cardiovascular conditions</b>	x	CHD prevalence (QOF) Stroke and TIA prevalence (QOF)	Yes
<b>People with respiratory conditions (chronic obstructive pulmonary disease and childhood asthma)</b>	x	COPD prevalence (QOF) Asthma prevalence (QOF)	Yes
<b>People with mental health conditions</b>	x	Depression prevalence (QOF)	Yes
<b>People with disabilities</b>	Limiting long-term illness or disability	Learning disability prevalence (QOF)	Yes
<b>Older people (65 and older)</b>	Older people in deprivation	Income deprivation -older people (NGPP)	No
<b>Young children (under 5)</b>	Child poverty	Income deprivation - children (NGPP)	No
<b>Pregnant women</b>	Fertility rate	x	Yes
<b>People on a low income</b>	Income deprivation	Income deprivation (NGPP)	No
<b>People who move in and out of homelessness</b>	x	x	Local research required. Data will be dependent on local systems/services.

Vulnerable Group identified by NICE	Indicator publicly available at ward/MSOA level via Local Health	Publicly available GP-practice level data via Quality and Outcomes Framework (QOF): or National General Practice Profiles (NGPP):	Data likely to be held by individual GP practices (which could be aggregated)
			Some areas may have a CCG or GP lead for this population.
People with addictions	x	x	Yes
People who have attended hospital due to a fall	x	x	Yes
Recent immigrants and asylum seekers	x	x	Unlikely. Local research required. Data will be dependent on local systems/services. Some areas may have 3 <sup>rd</sup> sector organisations with relevant data.

## 3.2 Estimating the number of cold homes

### 3.2.1 Data on fuel poverty

Fuel poverty in England is measured using the Low Income High Costs (LIHC) indicator. Under the LIHC indicator, a household is considered to be fuel poor if:

- 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 indicator is calculated using modelled estimates of household income, household energy requirements (using English Housing Survey data) and energy costs.

**Fuel poverty statistics** are published annually by the Department for Business, Energy and Industrial Strategy (BEIS), and include the number and proportion of households that are fuel poor in local authority, LSOA, parliamentary constituencies, counties and regions. The same information is used to provide the fuel poverty indicator in the **Public Health Outcomes Framework**.

This high level indicator is readily available and widely used. However, whilst estimates of the scale of fuel poverty in an area is a reasonable proxy for the number of cold homes it is not entirely synonymous. Since whether a home is cold or not may be affected by other factors unrelated to income (eg personal values, ability to use heating system, private vs social housing).



### **Relationship between Fuel Poverty and Excess Winter Deaths**

Case Study: **Wandsworth Council**

- Wandsworth Council undertook an Excess Winter Deaths (EWD) needs assessment in 2012
- Their assessment found that 4-9% of households in Wandsworth lived in fuel poverty. Wards that had a higher proportion of the population living in fuel poverty appear to have higher levels of EWD
- However, no clear direct relationship between deprivation and EWD was found
- The assessment noted that this may be due to new build properties comprising a significant proportion of the social housing stock in the borough. These properties tend to have better insulation and energy efficiency ratings, and thus run a lower risk of occupants experiencing fuel poverty

The findings of this study indicate the need for local authorities to consider private and social housing stock age as key characteristics of fuel poverty risk. Socio-economic status and measures of deprivation, although valuable and broadly indicative, may not necessarily identify those at risk of fuel

### **3.2.2 Other housing data**

There are a further key sources of publicly available data that could be used to estimate the scale of the problem of cold homes within a local authority, ward, or a LSOA. These data sources could help a local area to decide whether to prioritise cold homes as a public health issue, and/or whether to prioritise addressing the issue across a local authority or within specific geographical area(s).

#### **Energy Performance Certificate database (EPC)**

This dataset provides the number of properties with each EPC rating within a local authority. Using this information it is possible to calculate the percentage of all properties with an EPC below a specific rating (eg NICE guidelines advise that level B would guarantee affordable warmth for any occupant and is considered the ideal; the **Fuel Poverty Strategy** aims for as many fuel poor homes as reasonably practicable to achieve an energy efficiency standard of Band C by 2030).

Alternatively it is possible to download a CSV file containing data on every individual property with an EPC within a specific local authority. Since this provides postcodes of each individual property, it is possible to calculate the

average EPC of a specific geographical area (eg ward/LSOA). Provided a postcode look-up file is available for the specific spatial scale of interest.

### Local authority Housing Statistics database

This dataset includes data on the average EPC for local authority owned properties; the number of local authority owned properties with **Housing Health and Safety Rating System** (HHSRS) Category 1 Hazards (including the subset of dwellings 'without a reasonable degree of thermal comfort'), and the number of private rented sector (PRS) properties that have been inspected and found to have Category 1 Hazards (but not the subset that are 'without a reasonable degree on thermal comfort').

### Index of Multiple Deprivation (IMD2015) (file8)

The IMD2015 is a small area measure of deprivation. It is based on 37 separate indicators organised across 7 domains, which are weighted and combined. LSOAs are ranked according to their relative level of deprivation compared to other areas.

Some of the indicators used to generate the IMD 2015 are published individually at LSOA level and could be aggregated to provide ward or local authority-level data. Including subdomain indicators on housing in poor condition (a modelled estimate of the proportion of social and private homes that fail to meet the Decent Homes standard, based on data from the 2011 **English Household Survey** (EHS) and homes without central heating (using data from the 2011 census). Full definitions are available on pp51-53 of the IMD 2015 **technical report**.

### Properties off the Gas Grid

This interactive map provides the number of properties in each local authority or LSOA that are off the gas grid using 2013 estimates. The map also provides information on the number of households estimated to be in fuel poverty in each local authority/LSOA (using 2013 estimates), as well as the number eligible for the Carbon Saving Community Obligation of ECO.

### National Energy Efficiency Data-Framework (NEED)

In addition to the publicly available data BEIS hold, the NEED database contains energy consumption, energy efficiency installations under government schemes (ECO, Green Deal, etc.) and modelled demographic information (from Experian).

## Commercial products

There are a number of commercial products available which combine some of the sources of data outlined above as well as using additional modelling to provide modelled estimates of likely property characteristics at an individual dwelling level. Examples include products from the [Energy Savings Trust](#) and [BRE](#).

[Table 3](#) provides a summary of the different geographical levels and time periods for which the different data sources are available. Data that are only available for a single point in time (IMD and gas grid) could be used to provide local authorities with a snapshot estimate of the scale of the problem. Other datasets that are updated annually (eg EPC and local authority housing stats) could be used to develop an indicator to track progress over time.

## Local sources of data

There may be other data held by individual local authorities, which are not publicly available but which local authorities could make use of in a local needs assessment; local authorities are likely to hold more detailed data on local authority based Housing Statistics and HHSRS than the level of detail that is outlined here. Additionally, some, for example [Bristol Council](#), have commissioned housing condition surveys to provide a detailed picture of local private housing stock conditions and energy efficiency.

**Table 3: Geographical level and year for which housing data is available**

<b>Geographical Level at which housing data is available</b>					
<b>Data</b>	<b>Local authority</b>	<b>Ward</b>	<b>LSOA</b>	<b>Address</b>	<b>Year</b>
<b>Average EPC rating or proportion of properties with an EPC rating where rating is D or below (data available for all dates 2005-2016)</b>	Y	Could be calculated from postcode	Could be calculated from postcode	Y (if EPC issued between January 2005 and December 2016)	Monthly data 2005-2016
<b>Number of local authority -owned properties ‘without a reasonable degree of thermal comfort’ (annual data)</b>	Y	Not publically available but LA should hold this info	Not publically available but LA should hold this info	Not publically available but LA should hold this info	Annual data 2009-2017
<b>Number of PRS properties that have been inspected and have a HHSRS ‘Category 1 Hazard’ (annual data)</b>	Y	Not publically available but LA should hold this info	Not publically available but LA should hold this info	Not publically available but LA should hold this info	Annual data 2009-2017
<b>Modelled estimate of proportion of homes that fail to meet Decent Homes Standard (2011 data)</b>	Could be calculated from LSOA	Could be calculated from LSOA	Y	N	2011
<b>Modelled estimate of proportion of homes without central heating (2011 data)</b>	Could be calculated from LSOA	Could be calculated from LSOA	Y	N	2011
<b>Number of properties that are estimated to be off the gas grid (2013 data)</b>	Y	Could be calculated from LSOA	Y	N	2013

## 4. Identifying vulnerable individuals

Aggregated data is useful for estimating the scale of the problem and monitoring progress in reducing the impact, but individual level data is also needed to ensure that services reach those who need them.

NICE recommends that this is done using a variety of approaches, ideally in combination:

- using data to identify individuals who may be vulnerable because of their health, personal characteristics or poor housing
- using opportunistic approaches, through local practitioners who may identify potentially vulnerable people through their work

### 4.1 Identifying individuals at risk due to health conditions or personal circumstances

GP practices hold information on all patients who have been diagnosed with specific medical conditions, as well as those in vulnerable age groups. They will also have a record of individuals eligible for free flu vaccination, many of whom will also be vulnerable to the health impacts of cold homes. The **Electronic Frailty Index (eFI)** is a robust predictor of adverse outcomes (eg care home admission and mortality) in older people, is available to many GPs through electronic health records, and covers approximately 90% of the population.

GPs have extensive knowledge of their own patients, as well as the local context, both of which could be used to help identify those most at risk and to offer support. Furthermore, the NHS Quality Outcomes Framework (QOF) includes a category (also known as domain) on Public health and cardiovascular disease. The impact of cold weather on cardiovascular disease is well established. This may be an area of common interest between GP practices and local authorities managing fuel poverty and cold homes.

Local authorities also hold individual-level information about vulnerability; for example, households exempt from council tax could be used as a proxy indicator for those on low income. Registers for Assisted Bin Collections or Blue Badge Parking could be used to identify those with disabilities.

Energy companies hold information on those who pay for energy via a prepayment meter and may be at risk of self-disconnection. They also hold a Priority Services Register, which is a proxy for those with vulnerabilities due

to age, disability or chronic illness. These data are not published, but energy companies are required under the **Energy Company Obligation (ECO)** to promote measures which improve the ability of low income and vulnerable household to heat their homes. BEIS has produced **guidance** to support local authorities who may wish to work with energy suppliers including data sharing arrangements.

#### 4.1.2 Identifying those who are vulnerable because of poor housing

In addition to the aforementioned data local authorities may hold on HHSRS assessments, the publicly available **EPC database** provides address-level information of the EPC rating of each home where an EPC has been issued between 2005 to 2016. This could be used to identify all properties below a certain level of energy efficiency.

##### **Assessing households: insulation and heat loss**

###### Case Study: **Kirklees Council 'Warm Zone' Scheme**

- The Warm Zone project was the largest local authority home insulation scheme in the UK and offered free loft and cavity wall insulation to every suitable household in Kirklees (social and private housing stock alike)
- As part of the scheme, and in addition to all households being visited, Kirklees council piloted the use of aerial infrared thermographic imaging to assess heat loss from local buildings in a selected area
- Innovative night time aerial surveys using heat seeking sensors were used to identify properties with relatively high heat loss, and colour-coded digital temperature maps of the area were developed, to identify specific properties which could benefit from interventions

The project had many reported benefits in addition to the high proportion of the housing stock being adequately insulated, including an improvement in the health and welfare of residents, environmental sustainability and monetary savings for residents. The direct contact with the residents during the home visits and surveys also allowed for accurate identification of those who were experiencing cold homes or those who were potentially at risk.

#### 4.2 Identifying vulnerable individuals through opportunistic approaches

##### 4.2.1 Engaging those already in contact with health and care services

Many of the individuals who fall into one of the NICE Guidelines vulnerable population groups will already be in contact with health and care services, and **Table 4** below suggests potential services or settings or personnel in

which opportunistic 'Making Every Contact Count' (MECC) approaches for referral to services could be considered. Many cold homes services aim to work with GPs as well as, working with **Allied Health Professionals** in local community services, many of whom visit people's homes, which may also be beneficial and provide a wider resource of information.

It needs to be recognised, however that for those households facing complex medical or social issues, engaging with cold homes support may not be their top priority. In addition, those living in privately rented and/or non-permanent accommodation may be limited in what interventions can be delivered.

### **Single referral schemes for people vulnerable to fuel poverty**

#### **Case Study: Wigan Council's Affordable Warmth Access Referral Mechanism (AWARM)**

- Wigan Council's Affordable Warmth Access Referral Mechanism (AWARM) acts as a single-point-of-contact referral service for people living in cold homes, with an aim to deliver targeted housing interventions and reduce the related health impacts of fuel poverty and low indoor temperatures
- AWARM receives referrals from a range of workers in health and social care, third sector organisations and services including GPs and hospitals, all of which have interaction with those vulnerable to, or who are experiencing, fuel poverty and cold homes
- AWARM staff undertake a home visit to carry out a comprehensive 'Healthy Home Check' that covers energy efficiency, home repairs, home safety, home security, fuel debt, fuel tariff, income maximisation, and health and wellbeing for each case to, identify what referrals need to be made
- In addition to improving thermal comfort in homes, benefits in terms of financial savings to healthcare services have been demonstrated, by virtue of fewer repeat hospital attendances for cold home related ailments

### **4.2.2 Engaging those not in routine contact with health and care services**

Not all who are vulnerable will be in contact with health and care services. The **Keeping Warm in Later Life (KWILLT) project** identified some common attitudes that may be a barrier to seeking help or heating a home to an appropriate level; for example, a lack of trust in services, perception of being a burden, underestimating one's own risk and health resilience.

### Identifying barriers to people accessing help for cold homes

Case study: **Keeping Warm in Later Life (KWILLT) project**

- The KWILLT project focused on the older population, and used a number of methods including individual interviews, focus groups and surveys of the public and service staff to identify the factors (ie barriers) that may result in vulnerable older people being at risk of living in a cold home
- The project found that knowledge and awareness of safe temperatures, the health impact of cold and how to use heating efficiently were low across the study participants
- Older people's values and beliefs and the affordability of interventions were also important aspects of their willingness to access services

One aspect that the KWILLT project demonstrates, is the importance of capitalising on relationships between the vulnerable elderly and those they regularly come into contact with (for example health and social service providers, community groups). These familiar faces can act as a trusted source of information and identify relevant support needs or referrals where appropriate.

For elderly people at risk of harm from a cold home, every contact counts; opportunities to identify and support them should be considered, with referrals able to be made by a wide range of other services including community and voluntary sector organisations, **Fire and Rescue Services** (eg during home safety checks), heating engineers and smart meter fitters, libraries, and members of the public themselves.



## 5. Combining vulnerability and housing datasets

There are no routinely available sources of data that include information on both poor housing and vulnerability due to health or personal characteristics. There are, however, examples of how local authorities have used both housing and health data to better target messaging and offers of support to those potentially vulnerable to the health impacts of cold homes.

The case study below shows how this can be done using publicly available data, thereby avoiding the need for complex data-sharing agreements.

### Utilising datasets

#### Case Study: Durham housing and health data matching

Durham have combined the following data sets:

- Countywide energy database providing Standard Assessment Procedure (SAP) energy ratings
- Countywide housing stock condition model – data on poor housing conditions
- Countywide housing stock condition model – data on Category 1 Hazards under the Housing Health and Safety Rating Standards
- Countywide Public Health data giving details of each individual GP surgery with the highest levels of cold related illness – COPD, asthma, hospital admissions and readmissions etc.

These data have been used for their “Housing and Health Matrix”, which provides a league table showing the GP surgery catchment areas with the worst levels of fuel poverty/cold related ill health/housing conditions. Using this table they are currently working with 2 GP surgeries, where the surgery writes to all their patients with health conditions to encourage them to engage in the energy efficiency programmes funded by ECO2T running in County Durham. They are also working with Teesside University to carry out before and after studies with these residents.

More recently, and as an example of a locally developed toolkit encompassing different data sources, Cornwall Council, in collaboration with Citizens Advice, BEIS and a number of other councils has produced two “Cold Homes Toolkits” (one aimed at local authority colleagues and one for health professionals) to tackle fuel poverty. These toolkits draw on a number of useful resources and are freely available.

**Table 4: Service or settings where opportunistic approaches could be considered**

<b>Vulnerable Group identified by NICE</b>	<b>Service or setting</b>
<b>People with cardiovascular conditions</b>	<ul style="list-style-type: none"> <li>• Community pharmacies</li> <li>• At primary care annual review of chronic conditions</li> <li>• Specialist hospital services</li> </ul>
<b>People with respiratory conditions (COPD and childhood asthma)</b>	<ul style="list-style-type: none"> <li>• Community respiratory services</li> <li>• Community pharmacies</li> <li>• At primary care annual review of chronic conditions</li> <li>• Specialist hospital services</li> </ul>
<b>People with mental health conditions</b>	<ul style="list-style-type: none"> <li>• Community mental health services, Assertive Outreach teams</li> <li>• Community pharmacies</li> <li>• At primary care annual review of chronic conditions</li> <li>• Specialist hospital (mental health trust) services</li> </ul>
<b>People with disabilities</b>	<ul style="list-style-type: none"> <li>• Community pharmacies</li> <li>• At primary care annual review of chronic conditions</li> <li>• Specialist hospital services</li> </ul>
<b>Older people (65 and older)</b>	<ul style="list-style-type: none"> <li>• Community pharmacies</li> </ul>
<b>Young children (under 5)</b>	<ul style="list-style-type: none"> <li>• Community midwives (at post-natal home visits)</li> <li>• Health visitors (eg at checks as part of Healthy Child Programme)</li> <li>• Community pharmacies</li> </ul>
<b>Pregnant women</b>	<ul style="list-style-type: none"> <li>• Community midwives (at antenatal booking or follow up appointments)</li> <li>• Community pharmacies</li> </ul>
<b>People on a low income</b>	<ul style="list-style-type: none"> <li>• Within benefits/employment advice services</li> </ul>
<b>People who move in and out of homelessness</b>	<ul style="list-style-type: none"> <li>• Within homelessness services</li> </ul>
<b>People with addictions</b>	<ul style="list-style-type: none"> <li>• Within DAAT services</li> </ul>
<b>People who have attended hospital due to a fall</b>	<ul style="list-style-type: none"> <li>• Within falls or fracture liaison services</li> </ul>
<b>Recent immigrants and asylum seekers</b>	<ul style="list-style-type: none"> <li>• Within migrant advice services</li> </ul>

## Conclusion

In summary, living in a cold home and being subject to fuel poverty has established mental and physical health and wellbeing impacts. There are particular groups in the population who may be at greater risk of living in a cold home. Risk factors include not only having a low income or being in receipt of benefits but also:

- age
- those with pre-existing physical and mental health illnesses
- isolated individuals
- people living in the private rental sector
- people who may find themselves in a transient, ie short-term, state of fuel poverty due to changes in personal circumstances

Although it can be challenging to identify those most at need who are living in a cold home or are in fuel poverty, a number of data resources, guidelines and toolkits are available. These can be used in conjunction with local knowledge to target interventions and services to reduce the associated local health burden.