

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

PUBLIC HEALTH DRAFT GUIDELINE

Excess winter deaths and morbidity and the health risks associated with cold homes

What is this guideline about?

This guideline makes recommendations on how to reduce the risk of death and ill health associated with living in a cold home.

The aim is to help meet a range of public health and other goals. These include:

- Reducing preventable, excess winter death rates.
- Improving health and wellbeing among vulnerable groups.
- Reducing pressure on health and social care services.
- Reducing 'fuel poverty' and the risk of fuel debt or being disconnected from gas and electricity supplies (including [self-disconnection](#)).

Improving the temperature in homes, by improving energy efficiency, may also help reduce unnecessary fuel consumption (addressing cold homes is likely to involve an increase in fuel use by people living in fuel poverty). In addition, it may reduce absences from work and school resulting from illnesses caused by living in a cold home.

The health problems associated with cold homes are experienced during 'normal' winter temperatures (when outdoor temperatures drop below 6°C), not just during extreme cold weather.

Year-round planning and action by many sectors is needed to combat these problems.

The guideline is for commissioners, managers and health, social care and voluntary sector practitioners who deal with vulnerable people who may have health problems caused, or exacerbated, by living in a cold home. It will also be of interest to clinicians and others involved with at-risk groups, housing and energy suppliers. (For further details, see [Who should take action?](#)). In addition, it may be of interest to members of the public.

See [About this guideline](#) for details of how the guideline was developed and its current status.

Contents

What is this guideline about?	1
1 Draft recommendations	4
2 Who should take action?	12
3 Context	15
4 Considerations.....	20
5 Recommendations for research.....	29
6 Related NICE guidance	30
7 Glossary	31
8 Summary of the methods used to develop this guideline	32
9 The evidence	38
10 Gaps in the evidence	41
11 Membership of the Public Health Advisory Committee and the NICE project team.....	42
About this guideline	45

1 Draft recommendations

Recommendation 1 Strategic planning

Health and wellbeing boards should:

- Include the health consequences of living in a cold home in the joint strategic needs assessment process and develop a strategy to address this issue. The strategy should include:
 - Identifying people whose health is at risk from cold homes.
 - Assessing how heating and insulation needs to be improved to raise properties to an acceptable [standard assessment procedure](#) (SAP) rating. As a minimum, properties should be raised to a band D (55), and ideally to a band B (81) rating.
 - A tailored programme to make any necessary changes, including preventive measures all year round – not just in the winter.
 - Provision for ‘normal’ winter temperatures – not just periods of severe cold¹.
 - Preventing ill health as well as deaths from cold homes. This includes mental health and wellbeing, as well as physical health.
 - Groups that may face particular problems, such as those living in [hard-to-heat homes](#) or who need more warmth. (For instance, because of limited mobility or specific health conditions.)
 - An outline of how the other recommendations in this guidance are to be put into practice locally.
- Ensure planning includes identifying local interventions and providers from all sectors (such as utilities, housing providers and organisations in the voluntary sector).
- Consider how the issues and actions identified are reflected in health and wellbeing and other relevant local strategies or plans.

¹ Although lower temperatures have a more significant effect on health, the ill-effects from cold homes are seen when outdoor temperatures drop to around 5–8°C. Because periods of temperatures in this range are much more common, most health problems caused by the cold occur during these periods.

Recommendation 2 Provide a local health and housing referral service for people living in cold homes

Health and wellbeing boards should:

- Ensure a referral and co-ordination service is commissioned to help vulnerable people who live in cold homes. Referrers could include: health and social care professionals, charities and voluntary organisations. They could also include those who come into contact with at-risk groups (see recommendation 5), such as advice agencies or fire prevention and safety services. The referral service should:
 - Provide access to services (see recommendation 3) for those at risk. These are likely to be provided by: health and social care providers, local housing providers, advice agencies (such as Citizens Advice Bureaux and money advice organisations), health and social care charities, voluntary organisations and [home improvement agencies](#).
 - Involve face-to-face contact, where necessary, with the person using the service, their families and their informal carers.
 - Work with the person to identify problems caused by living in a cold home and the possible solutions.
 - Make the person and their carers aware of what actions are planned (or taking place) and ensure the activities are coordinated to minimise disruption in the home.
 - Provide feedback on the actions and outcomes to the referring professional or agency.

Recommendation 3 Provide services via a 1-stop local health and housing referral service for people living in cold homes

Health and wellbeing boards and their partners (see [Who should take action?](#)) should ensure the referral service:

- Provides access to housing insulation and heating, more affordable fuel options (where available) and advice on how to avoid the health risks of cold homes. This includes:
 - Information about the health risks linked with living in a cold home (see Public Health England's '[Cold weather plan](#)' for further information).
 - Access to insulation and heating improvement programmes and grants. (These should be led, or endorsed, by the local authority and include those available from energy suppliers.)
 - Tailored solutions to address identified needs (rather than providing off-the-shelf solutions).
 - Access to, and coordination of, services that address common barriers to tackling cold homes. (For example, access to a [home improvement agency](#) service that can fix a leaking roof, or to a voluntary group that can help clear a loft ready for insulation.)
 - Help to ensure all due benefits are being claimed. (Claiming all allowable benefits can often lead to additional help with home improvements. It may also help people to manage their fuel bills and any debt.)
 - Registration on [priority services registers](#) (for energy supply and distribution companies) to ensure vulnerable households get tailored support from these companies.
 - Advice on managing energy effectively in the home and securing the most appropriate fuel tariff and billing system. (The most appropriate fuel tariff may not be the cheapest if, for example, someone does not have a bank account or needs to budget on a weekly basis.
 - Short-term emergency support in times of crisis (for instance, room heaters if the central heating breaks down).

Recommendation 4 Identify people at risk of ill health from living in a cold home

Health and social care professionals should:

- Use existing data and professional contacts and knowledge to identify people who live in a cold or hard-to-heat home, or are particularly vulnerable to the cold because of a medical condition.
- Include this information in the person's records. Use it to assess their risk and take action, where necessary.

Recommendation 5 Health and social care professionals should 'make every contact count' by assessing the heating needs of vulnerable people who use their service

Health and social care professionals should:

- Take into account the needs of groups who are vulnerable to the cold, in particular:
 - people with cardiovascular conditions
 - people with respiratory conditions (in particular, chronic obstructive pulmonary disease and childhood asthma)
 - people with mental health conditions
 - people with disabilities
 - older people (65 and older)
 - households with young children (up to school age)
 - pregnant women
 - people on a low income.
- Provide people, including those from vulnerable groups and their informal carers, with information about how living in a cold home can affect their health. Also provide details on services that can help and make referrals where appropriate.
- Use their time with people who use the service to assess whether they (or another member of the household) is experiencing (or is likely to experience) difficulties keeping their home warm enough.

- Be aware that people may not want to admit they are having difficulties paying for heating and may try to hide this. (For instance, they might only put the heating on when expecting a scheduled home visit from a professional.)
- Be aware that living in a cold home may have a greater effect on people who are forced to spend longer than average time at home. This might include those with chronic health conditions (including terminal illnesses) or disabilities.
- If a cold home is assessed to pose a risk to health, assess what the effect is likely to be on the person's health and wellbeing. Identify how the situation could be improved. Ensure there is a shared understanding of who is responsible and take action as necessary. This may include:
 - referral to the local health and housing service
 - health-based solutions (for instance, ensuring the person is offered flu vaccinations at the start of the winter) .
- Record these actions in the person's notes and make this information available to other professionals, while respecting confidentiality.

Also see recommendations [2](#) and [3](#).

Recommendation 6 Others visiting vulnerable people should assess their heating needs

People outside health and social care services who visit vulnerable people at home, for instance, to carry out heating system repairs, to install or read meters, including smart meters, or simply to pay a social visit (see [Who should take action?](#)) should:

- Raise the client's awareness of the effect that living in a cold home can have on their health.
- Refer anyone who needs help (such as with changes in the home) to the local housing and health service, if they give their consent (see recommendations [2](#) and [3](#)).

Recommendation 7 Use new technology to help reduce the risks from cold homes

Those involved with providing the latest heating and other related technologies in the home (see [Who should take action?](#)) should:

- Identify opportunities for using new electronic systems to reduce the risks associated with cold homes, taking into account the need for consent to any systems introduced. (For example, householders could be offered a temperature alert system linked from a smart meter to a health or social care provider).

Recommendation 8 Ensure vulnerable hospital patients are not discharged to a cold home

Those responsible for arranging someone's discharge from hospital (see [Who should take action?](#)) should:

- Assess whether action is needed to make sure the person's home is warm enough for them to return to. This assessment should take place all year round, not just during colder weather.
- As part of the planned discharge, coordinate efforts to ensure their housing is warm enough. This could include simple measures, such as turning on the heating before discharge, providing advice on the ill effects of cold on health, or providing advice on how to use the heating system.
- Ensure any heating issues are referred to, and addressed via, the local health and housing referral system (see recommendations [2](#) and [3](#)). For example, make a referral if a heating system needs replacing or the property needs insulating.
- Ensure any heating issues are resolved in a timely manner, so as not to delay discharge from hospital.

Recommendation 9 Train health and social care professionals to help people whose homes may be too cold for their health and wellbeing

Training providers for health and social care professionals (see [Who should take action?](#)) should:

- Ensure training programmes include details on how living in a cold home can affect people's health and wellbeing.
- Ensure ongoing training programmes raise awareness of local systems and services to help people who are living in homes that are too cold for their health.
- Ensure professionals are trained to raise the issue of living in a home that's too cold. They should also be able to advise on sources of support and help and know how to refer someone, where necessary.

Recommendation 10 Train housing professionals and voluntary sector workers to help people whose homes may be too cold for their health and wellbeing

Those who train housing professionals and people working in the voluntary sector (see [Who should take action?](#)) should:

- Ensure those in contact with at-risk groups are aware of how cold housing can affect people's health and wellbeing. At-risk groups include older people and young children (see recommendation 5).
- Ensure those in contact with at-risk groups can spot when and how someone is at risk of being too cold at home. They should be aware of local services designed to address these problems and understand how to refer someone for help.

Recommendation 11 Train heating engineers, meter installers and those providing building insulation to help vulnerable people at home

Employers who install and maintain heating systems, electricity and gas meters and building insulation (see [Who should take action?](#)) should ensure employees who visit vulnerable people are:

- Trained to deal sensitively with their needs. For instance, they should provide information about the work they are doing in a form that can easily be understood by the recipient. Ensure these skills are accredited.
- Aware of how a cold home can affect someone's health.
- Able to spot if someone is vulnerable to the cold and the risks they are facing at home.
- Able to identify if there is not enough ventilation – and have the ability to take appropriate remedial action.
- Aware of who to call if there is a problem.

Recommendation 12 Raise awareness among professionals and the public about how to keep warm at home

Health and wellbeing boards, Public Health England and Department of Energy and Climate Change (DECC) should:

- Ensure up-to-date information is available for both professionals and the public on how cold homes can affect people's health.
- Address commonly held misconceptions, for instance, that drinking alcohol can help keep someone warm or that hypothermia is the main health problem caused by the cold.
- Ensure up-to-date details of national and local support is available for both professionals and the public. This support should address the problems caused by cold homes. It might involve improving the fabric of the housing or the heating system, improving the affordability of heating or giving general advice on how to keep warm.

- Ensure national advice takes into account local and regional variations in the kind of support offered.

Recommendation 13 Ensure buildings meet ventilation and other building and trading standards

Building control officers, environmental health officers and trading standards professionals should:

- Ensure changes to buildings are carried out at least to the standard required by Building Regulations (see the government's [Planning Portal](#)), in particular, with respect to ventilation.
- Use existing powers to identify housing (particularly in the private rented sector) that may expose vulnerable residents (see recommendation 5) to the cold. Existing powers fall under both the housing health and safety rating system and trading standards legislation (in relation to energy performance certificates).
- Ensure any problems are addressed.

2 Who should take action?

Introduction

The guideline is for those with an interest in health and housing. They could be working in local authorities, the NHS or other organisations in the public, private, voluntary and community sectors. It is also aimed at:

- utility companies, particularly energy suppliers and energy distribution companies
- others responsible for providing and maintaining heating systems and insulation in the home.

In addition, it will be of interest to families, carers and other members of the public.

Who should do what at a glance

Who should take action	Recommendation
Department of Energy and Climate Change	7, 12
Environmental health officers	13
Health and wellbeing boards	1, 2, 3, 12
Housing services	3, 6, 13
Installation and maintenance contractors	6, 7, 11
Local authorities	3
NHS England	9
OfGEM	7
Organisations that coordinate or offer training, or that register and set standards for professionals (for instance, royal colleges and universities)	9, 10, 11
Public Health England	7, 12
Primary healthcare professionals	4, 5
Secondary healthcare professionals	4, 5, 8
Social care professionals	4, 5, 8
Trading standards officers	13
Utilities	3, 6, 7, 11
Voluntary sector	2, 3, 6, 10

Who should take action in detail

[Recommendation 1](#)

Health and wellbeing boards

[Recommendation 2](#)

Health and wellbeing boards, voluntary sector

[Recommendation 3](#)

Health and wellbeing boards; local authorities; housing providers; energy utility and distribution companies; voluntary sector organisations

[Recommendation 4](#)

Health and social care professionals

[Recommendation 5](#)

Health and social care professionals

Recommendation 6

Voluntary sector organisations: energy utility and distribution companies; housing professionals, installation and maintenance contractors

Recommendation 7

Department for Energy and Climate Change (DECC); Public Health England; energy utility and distribution companies; OfGEM

Recommendation 8

Secondary healthcare professionals; social care professionals

Recommendation 9

NHS England, universities and other training providers. This includes: accredited agencies that train professionals in environmental health, nursing and allied professions, medicine and para-medicine, environmental health and housing

Recommendation 10

Training providers including: Chartered Institute of Environmental Health, Chartered Institute of Housing, National Council for Voluntary Organisations, National Association for Community and Voluntary Action, National Housing Federation, Board Development Agency, further education colleges and accredited NVQ training agencies, universities.

Recommendation 11

Providers of training including: energy utility and distribution companies; further education colleges; and accredited NVQ training agencies

Recommendation 12

Health and wellbeing boards; Public Health England; DECC

Recommendation 13

Building control officers; environmental health officers; trading standards professionals

3 Context

Introduction

Public Health England's 2013 [Cold Weather Plan](#) notes that winter weather has a direct effect on the incidence of: heart attack, stroke, respiratory disease, flu, falls and injuries and hypothermia. Indirect effects include mental health problems such as depression, and the risk of carbon monoxide poisoning if boilers, cooking and heating appliances are poorly maintained or poorly ventilated.

The strongest link is between respiratory deaths and the cold. But because generally more people die from cardiovascular disease, cardiovascular illnesses and deaths account for most of the health problems. Overall, the number of [excess winter deaths](#) varies between years – generally it's around 24,000 in England and Wales. The 5-year moving average shows a decreasing trend in recent years up to 2005/06, after which there has been a gradual rise ([Statistical bulletin: Excess Winter Mortality in England and Wales, 2012/13](#) Office for National Statistics 2013).

Most excess winter deaths and illnesses are not caused by hypothermia or extremes of cold. Rather, they are usually caused by respiratory and cardiovascular problems during normal winter temperatures – when the mean outdoor temperature drops below 5–8°C ([Making the case](#) Department of Health 2013). The risk of death and illness increases as the temperature falls further. However, because there are many more relatively 'warm' winter days than days of extreme cold, most cold-related ill health and death occurs during these milder periods.

Unlike illnesses and deaths associated with hot days (when the increase in the number of deaths lasts for a day or so after the heatwave) rates remain higher for up to 2 weeks after a cold spell has ended.

A household that cannot afford to heat its home is likely to be under stress, for instance, from being forced to live in the only heated room. Or it may need to choose between heating and food or other commodities or risk falling into

debt. Other problems, such as falls (because people are stiffer due to the cold) also play a role.

Housing conditions

Housing conditions are a very important factor. The death rate rises about 2.8% for every degree Celsius drop in the external temperature for those in the coldest 10% of homes. This compares with a 0.9% rise in deaths for every degree Celsius drop in the warmest 10% of homes ([Cold comfort](#) Joseph Rowntree Foundation 2001). The Marmot review team's [The health impacts of cold homes and fuel poverty](#) (2011) estimated that 'excess winter deaths in the colder quarter of housing were almost 3 times as high as in the warmest quarter'.

The importance of housing conditions is also emphasised by international comparisons that show lower rates of excess winter deaths in countries where homes are more energy-efficient.

Several factors also influence whether someone finds themselves living in a cold home – and how ill they may become as a result. These include:

- how efficient the heating system is
- how well insulated the home is
- whether the person can afford to heat their home (factors here include their income, the cost of fuel, the temperature needed to heat the home and how long the heating needs to be on)
- the person's vulnerability to the effects of cold due to age or a medical condition.

Figure 1 shows the relation between these factors and their potential effect on health. Note that it is intended to provide a simplified depiction of the complex interconnections between temperature, buildings, heating systems, cost, behaviours and health outcomes.

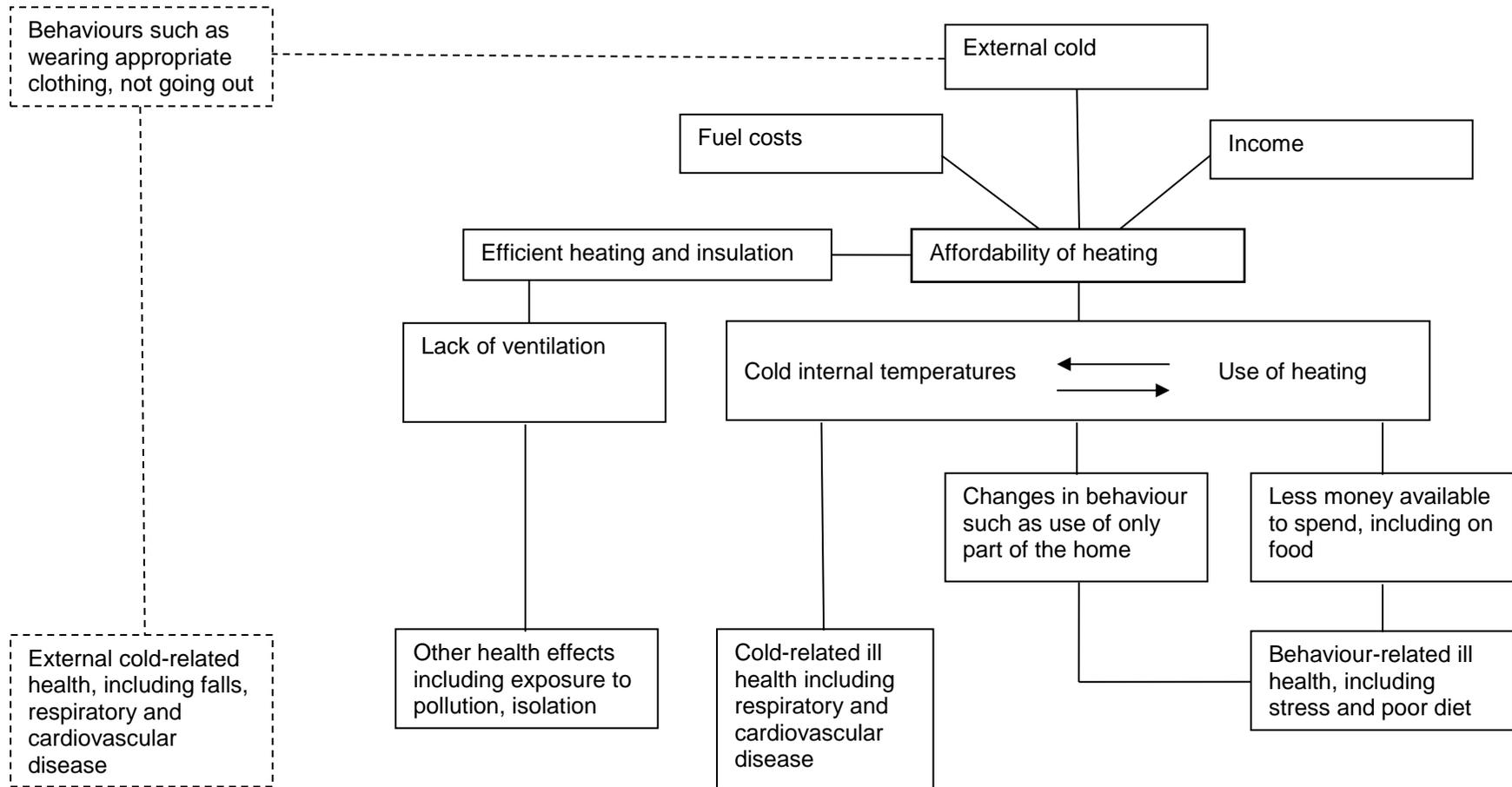


Figure 1 Factors linking cold temperatures to excess winter deaths and illness

Keeping homes warm: SAP ratings

How well buildings retain heat (often expressed as a [standard assessment procedure](#) or SAP rating) is an important factor in determining how much it will cost to keep housing at a given temperature. The SAP rating of housing stock across England varies considerably. In 2012 the average was 59 (out of 100). The proportion of energy-efficient housing (currently considered to be above 69) increased from 2% in 1996 to 18% in 2012. Around 2 million properties (9% of the housing stock) had a SAP of less than 30.

SAP scores vary according to the type of construction, level of insulation and type of heating system and its associated costs. Housing with cavity walls, insulation to walls and roofs and central heating have higher scores. Properties reliant on traditional forms of electric heating (such as storage heaters) may have a lower SAP score.

Older properties tend to have lower SAP scores (they are more likely to be less well insulated). The lowest rating is for pre-1919 stock (mean score 41) and the highest is for post-1980 housing (mean score 63).

Average SAP scores vary for different tenures. Average SAPs in the social sector (local authority and [registered social landlord](#) housing) are generally higher (around 60). They are generally lower in the owner-occupied sector (around 50) and particularly the private rented sector (around 45).

Keeping homes warm: affordability

Living in a relatively energy-efficient home is not the only factor influencing whether someone can keep their home warm. The affordability of the energy needed (determined by the cost of fuel and household income) is a key factor.

[Understanding fuel expenditure: fuel poverty and spending on fuel](#), a 2010 study by the Centre for Sustainable Energy, identified groups who had found it particularly difficult to pay for adequate heating. The study found that all households generally consume less fuel than they need, calculated from the 2007 [English house condition survey](#) (Department for Communities and Local Government). On average, households use only around two-thirds of the

energy they actually need to stay warm enough at home. People on low incomes are more likely than average to use less heating.

Vulnerable and disadvantaged groups

Spending a high proportion of income on fuel tends to be associated with a low income rather than high heating needs. This pattern of expenditure tends to be associated more closely with some groups, such as lone parents.

A 2010 survey by the Centre for Sustainable Energy ([You just have to get by](#)) looked at people living on less than 60% of the national median income (less than £6000 a year). Half said they found it difficult to pay their fuel bills. During the previous winter, nearly half (46%) had cut back on heating and 63% had lived in homes that were colder than they wanted them to be. Nearly half (47%) said the cold had made them feel anxious or depressed, and 30% said an existing health problem had got worse. Some (17%) did not feel able to invite friends or family to the home because of the cold.

Cold homes particularly affect some groups. Again, this is caused by a variety of factors. For example, some people are likely to spend a larger part of their time at home, increasing both the likely cost of heating and their potential exposure to an inadequately heated home. These groups include: babies and young children and their carers, older adults and people with chronic conditions, particularly if these restrict mobility.

Excess winter deaths are more common among, but are by no means confined to, older people. In 2012/13, 46% of cold-related deaths were among people older than 85, with 28% among those aged between 75 and 84 (24% were among people younger than 75). Others, such as people with respiratory conditions, or an increased susceptibility to respiratory infections, are also likely to be at increased risk of health problems caused by living in a cold home.

Fuel poverty

Fuel poverty relates to a household's ability to pay for adequate heating. It can be caused by some or all of the following:

- a poorly insulated home
- inefficient or inadequate heating
- high fuel prices
- low income.

In England, the definition of fuel poverty was recently changed following the [Hills review](#) (Department of Energy and Climate Change 2012). Someone is now said to be in fuel poverty if heating their home adequately costs more than average and paying the bill would leave them below the official poverty line.

A previous definition (still in use in Wales, Scotland and Northern Ireland) is that someone is in fuel poverty if they need to spend more than 10% of their income on domestic energy bills to keep their home warm enough.

National policy

National policy linked to cold homes is driven by health (Public Health England's 2013 [Cold Weather Plan](#)) and environmental issues (policies to reduce fuel use). Although these are broadly consistent, in some cases they may be at odds.

For instance, people on a low income may need to use more fuel to keep warm in poorly insulated housing. So any increase in fuel prices, either as a result of funding for insulation schemes or to reduce fuel use, will push some people into (or deeper into) fuel poverty, unless this increase is in conjunction with other changes, such as improvements to the insulation of their homes.

4 Considerations

This section describes the factors and issues the Public Health Advisory Committee (PHAC) considered when developing the recommendations.

Please note: this section does **not** contain recommendations. (See [Recommendations](#).)

Background

- 4.1 Many factors may influence the variation in death rates between winter and summer. This includes the weather, seasonal infections, air pollution, behavioural changes and micronutrient levels. Most studies on the subject are based on data analyses for large populations (often whole cities or regions) for which health outcomes are related to outdoor, rather than indoor, temperatures. These studies show an effect attributable to cold. Often they also show a time-lag of up to 2 or 3 weeks between exposure to the cold and death or disease. The Committee noted that, because cold affects death rates, this implies it also has an effect on any associated ill health.
- 4.2 The UK has a relatively high rate of [excess winter deaths](#), based on international comparisons that use this definition.
- 4.3 In some years, cold weather is not restricted to the period between December and March (officially designated as 'winter' by the Office for National Statistics). This was the case in 2013, when the daily death rate was higher than average from February to mid-April. The cold-related deaths that occurred in April would have been assigned to the 'non-winter' period – so reducing the official number of excess winter deaths that year. Bearing this in mind, the Committee noted that it might be more accurate to use cold weather, rather than month, to calculate and examine excess winter deaths. On this basis, in the years without flu epidemics, cold is shown to be the most important factor contributing to a seasonal variation in death rates. Members also noted that such an approach may be useful when comparing differences between countries where cold winter weather may extend beyond the December to March period. Or when comparing differences with countries where winters routinely last for a relatively short period..

- 4.4 The Committee noted that 'excess winter deaths' is sometimes useful as a shorthand term. However, members do not think it accurately describes all the health and wellbeing issues linked with cold and cold homes. They felt a focus on excess winter illnesses (as well as deaths) provides a more rounded picture of the risks associated with the cold. Members noted that cold-related illnesses affect people of all ages.
- 4.5 Interventions to address the health effects of cold homes include: policy (such as providing free boiler replacements); services (such as local efforts to implement policy and changes to buildings and heating); and changes made by individuals. (The latter could include loft insulation, double glazing or installing more efficient boilers.)
- 4.6 The Committee noted the importance of considering cold-related illnesses (as well as deaths from the cold). There is a lack of evidence on the former. However, evidence does indicate that changes in home heating, insulation and temperature can have a beneficial effect on illnesses from a range of causes.

Evidence

- 4.7 Much of the evidence relating to seasonal differences in death rates comes from time-series studies. In these, the studied population acts as its own control and the usual 'confounders', such as smoking, age or gender, are less important
- 4.8 The Committee noted that there was limited UK evidence on how to prevent cold-related deaths (particularly relating to interventions).
- 4.9 No UK evidence was found about the problems associated with cold homes among minority ethnic groups as a result of their ethnicity. However, the association between some minority ethnic groups and deprivation may mean that some of these groups are more likely to live in cold homes. The Committee noted that there

may be issues for people with conditions such as sickle cell anaemia, but no evidence was identified. Other groups, including recent immigrants from warmer climates, may not be immediately equipped to manage in cold weather. (For example, they may not have appropriate clothing or heating, or know how to use heating systems.) In addition, they may not be familiar with the various payment methods for gas and electricity. This could make them more vulnerable during their first winter here.

- 4.10 The Committee considered whether there were different problems with cold housing between urban and rural areas. The evidence did not show any significant differences, although this may be partly due to study difficulties caused by the dispersed nature of rural populations. However, the Committee noted that rural properties may be more likely to be 'off grid' and so reliant on more expensive forms of fuel. Members also noted that there may be more installation difficulties (due to difficulties accessing a property). But these issues were not considered to be exclusive to rural areas.
- 4.11 The evidence on issuing bad weather alerts did not demonstrate any health benefits. In addition, the guideline focuses on addressing issues related to cold homes all year round – and not just during periods of bad weather. So the Committee did not make any recommendations on the use of bad weather alerts.

Health economics

- 4.12 PHAC noted the lack of health economics literature directly applicable to the UK. Thus a new health economic model was developed to assess the cost-effectiveness of interventions associated with cold homes. Limited evidence on the relationship between indoor temperature and health meant that the economic model was based on a number of assumptions, as follows:
- People only had 1 health problem. (The benefits of interventions for those with multiple vulnerabilities or multiple health problems are not fully captured.)
 - The severity of common mental health disorders was not considered and the model does not capture wellbeing or happiness.
 - Utility values for different health states were not adjusted for age or severity, and the potential impact of adjusting age or severity was not explored.
- 4.13 The Committee acknowledged that the economic analysis underestimated the non-health benefits from a societal perspective by focusing on energy cost savings. Members noted that housing energy efficiency improvements could also lead to savings on carbon and on social care costs. It could also lead to productivity gains by reducing sickness absence from work.
- 4.14 The Committee noted that, under normal circumstances, interventions to ensure homes are warm enough are not funded directly by health services but by the energy and distribution companies. The likely cost to the health sector is in identifying those who are most at risk of health problems from the cold and helping to ensure they receive the necessary support.
- 4.15 The Committee noted that the results of modelling and sensitivity analyses were uncertain. Overall, however, housing energy efficiency interventions (such as roof insulation, double-glazing or

boiler replacement) are cost-effective compared with current practice. This is particularly true of interventions aimed at households with a low [standard assessment procedure](#) (SAP) rating or aimed at vulnerable people. In both cases, these target groups gained the greatest health benefits.

- 4.16 The Committee discussed the potential benefit of providing a short-term fuel subsidy, combined with energy efficiency measures in the home. Members acknowledged that a short-term fuel subsidy alone would not be an effective alternative to energy efficiency measures. Fuel subsidy alone was reported to be less cost-effective than when combined with energy efficiency measures from a health perspective. However, the Committee noted that neither health nor non-health benefits are fully captured.

Equalities

- 4.17 The Committee noted that some groups are more likely to suffer the adverse effects of cold. These include people:

- on a low income
- with a health condition or disease (such as respiratory or circulatory diseases)
- whose homes are hard to heat.

Information about these people may be held by a variety of services involved in some aspect of their lives. But action to address problems is likely to be hindered by the lack of access to this information, or lack of understanding of the options available to address problems. (For example, people may not know how to obtain support to install insulation.)

- 4.18 Several groups are more likely to suffer from the effects of cold homes. This is either because they are more likely to live in cold homes, or because they are more susceptible to its effects. For example, although not a homogenous group, people with

disabilities are more likely to live in materially disadvantaged circumstances than others. They are also more likely to need more heat. With this in mind, members expressed concern that some people with disabilities may need to use benefits intended to support their independence to ensure their home is warm enough.

Illness and deaths linked to the cold

- 4.19 There is an increase in deaths from almost all causes during cold weather. But cardiovascular and respiratory conditions are the key causes associated with cold weather and a cold home. Only a very small number of deaths are linked to hypothermia. Although the relative risk associated with respiratory conditions and the cold is greater than for cardiovascular disease, more people overall die of the latter – and therefore most excess winter deaths are attributable to cardiovascular disease.
- 4.20 In England, a relatively sharp increase in the risk of death occurs when outdoor temperatures fall to around 6°C. This indicates that significantly more cold-attributable deaths occur at a relatively higher mean temperature than on days of extreme cold. This is because, although the risks are relatively smaller when it is only moderately cold, there are more days of moderate than extreme cold.
- 4.21 Cold homes can have a significant effect on people's social activities. For example, they may not want to invite friends home because the house is cold, or only a small part is heated (to save money). The Committee noted that people living in cold homes frequently report that this has an effect on their daily life.

Services and policy

- 4.22 The Committee heard that services to ensure people are warm enough at home are generally patchy, both in terms of geographical coverage and duration. Lack of consistency makes it

difficult for professionals to know what type of service and support is available locally.

- 4.23 Often action to reduce the harm caused by living in a cold home is made more difficult because there is a lack of coordination of services, or a lack of understanding of who should take responsibility. The Committee noted that visitors to vulnerable households should not assume action is being taken by anyone to ensure the home is warm enough.
- 4.24 The Committee noted that some people may feel stigmatised by admitting that they cannot afford to heat their home properly and may try to hide this. (For example, they may put the central heating on only when expecting a scheduled visit from a health or other professional.)
- 4.25 The Committee noted the importance of using a trusted intermediary to help negotiate arrangements with a range of potential contractors to address problems caused by living in a cold home. Members noted that this is best achieved face to face.
- 4.26 Current policies (such as Public Health England's 2013 [Cold Weather Plan](#)) already emphasise the need for year round planning. However, planning tends to focus on relatively short periods of severe weather. The Committee heard that, generally, health and wellbeing boards were not involved in planning all-year-round action to combat the more enduring ill effects of cold homes.
- 4.27 Sustainable funding to ensure local coordination of services is maintained is a key issue. The Committee heard of examples where funding from clinical commissioning groups had been invaluable in coordinating and targeting services. (Many of the services used were funded via national or utility company programmes.)

4.28 The Committee discussed the potential roll-out of smart meters. This process will provide a contact with every householder (at least when they are being fitted). But in addition, members discussed whether they could be used for remote data monitoring to identify homes using less energy than might be expected. Other possibilities, such as using these data in conjunction with telemedicine services, were also noted. The Committee noted data protection concerns related to data sharing.

Barriers

4.29 The Committee noted that a range of people were likely to be involved with those at risk from cold homes. These include health and social care professionals as well as others from the housing, advice, utility and energy sectors. Workers from the voluntary sector and carers and neighbours are also likely to be involved. Because of the complexity of the problem, members noted the importance of making all these groups aware of how living in a cold home can affect people's health and how to access services locally.

4.30 The Committee discussed the training needs of professionals installing heating, insulation and other heating-related equipment (such as meters), in terms of supporting vulnerable and disabled people. Members agreed that quality of service played a big part in ensuring new equipment was accepted and used properly. They also noted that current training is largely restricted to safety issues.

4.31 There are many barriers to addressing cold homes. These include: a lack of awareness of the health issues; lack of local or national support (often linked to knowledge of what is available); and practical issues. (The latter could include not being able to insulate someone's loft because it is filled with their possessions.)

This section will be completed in the final document.

5 Recommendations for research

The Public Health Advisory Committee (PHAC) recommends that the following research questions should be addressed. It notes that ‘effectiveness’ in this context relates not only to the size of the effect, but also to cost effectiveness and duration of effect. It also takes into account any harmful or negative side effects.

- 5.1 What is the effect of cold homes on the rate of illness and death among different groups of vulnerable people? This includes the effect and interaction of multiple vulnerabilities (such as age and pre-existing disease). It also includes the effects of intervening factors like fuel poverty and poor housing. Analysis is needed of existing UK-based databases.
- 5.2 Among people vulnerable to cold-related illness and death, what do quantitative and qualitative research findings tell us about the barriers to, and facilitators for, action and coping strategies with respect to the cold? (This includes [self-disconnection](#) when using pre-payment meters.)
- 5.3 How effective are different forms of intervention designed to address cold-related illness and death? Studies should capture the full range of costs and benefits associated with implementation of changes (including fuel bill savings), as well as adverse effects (such as changes to indoor air pollution levels). They should be of a sufficient scale to be meaningful, use objective measurements and include ‘natural experiments’. (The latter might include the roll-out of smart meter technology.)
- 5.4 What is the relationship between improved home energy efficiency and the indoor temperature selected by people living in a representative cohort of UK housing types? (What is the extent of the trade-off between reduced fuel bills and higher indoor temperatures following alterations to home energy efficiency?)

More detail identified during development of this guideline is provided in [Gaps in the evidence](#).

6 Related NICE guidance

Published

- [Social and emotional wellbeing – early years](#) NICE public health guidance 40 (2012)
- [Chronic obstructive pulmonary disease](#) NICE quality standard 10 (2011)
- [Chronic obstructive pulmonary disease](#) NICE clinical guideline 101 (2010)
- [Prevention of cardiovascular disease](#) NICE public health guidance 25 (2010)
- [Amantadine, oseltamivir and zanamivir for the treatment of influenza](#) NICE technology appraisal guidance 168 (2009).
- [Depression in adults](#) NICE clinical guideline 90 (2009)
- [Reducing differences in the uptake of immunisations](#) NICE public health guidance 21 (2009)
- [Social and emotional wellbeing in secondary education](#) NICE public health guidance 20 (2009)
- [Mental wellbeing and older people](#) NICE public health guidance 16 (2008)
- [Oseltamivir, amantadine \(review\) and zanamivir for the prophylaxis of influenza](#) NICE technology appraisal guidance 158 (2008)
- [Social and emotional wellbeing in primary education](#) NICE public health guidance 12 (2008)
- [Falls](#) NICE clinical guideline 21 (2005)

Under development

- Vitamin D: implementation of existing guidance to prevent deficiency . NICE public health guidance. Publication expected June 2014.
- Sunlight exposure: communicating the benefits and risks to the general population benefits and safety. NICE public health guidance. Publication date to be confirmed.

7 Glossary

Excess winter deaths

Almost all causes of death show some variation with season. Overall, the death rate is higher during winter months and these deaths are referred to as 'excess winter deaths'. In the UK, these figures are based on death rates from December to the end of March.

Hard-to-heat homes

Hard-to-heat homes include:

- those with solid walls
- those with no loft space
- those in a state of disrepair
- high rise blocks
- those not connected to (and that cannot be connected to) the gas grid.

Other factors, such as listed architectural features, accessibility or construction quality may make it difficult to significantly improve the SAP rating (see standard assessment procedure below). Such properties are sometimes described as 'hard to treat'.

Home improvement agencies

Home improvement agencies are local organisations that help older people, people with disabilities and vulnerable people to live in safety and with dignity in their own homes. Services focus on ensuring existing housing is fit for purpose and that vulnerable people, predominantly homeowners, can live independently for as long as possible. Locally they may be known as 'care and repair' or 'staying put' agencies.

Priority services registers

The priority services registers are schemes offering extra free services to people who are of pensionable age, are registered disabled, have a hearing or visual impairment, or have a long term health problem. They are run by energy suppliers and distributors.

Self-disconnection

Self-disconnection occurs when a pre-payment meter is not topped-up (either accidentally or intentionally) before all the credit, including emergency credit, is used and the supply is cut off.

Standard assessment procedure

'Standard assessment procedure' (SAP) refers to an index that reflects the cost of heating a dwelling. The index depends on the rate of heat loss determined by: building fabric, degree of insulation, ventilation and the cost of the heating. This last factor is determined by heating efficiency, fuel price and solar gain. SAP ratings are frequently divided into 7 bands (A to G). A (most efficient) runs from 92–100, B from 81–92, C from 69–80, D from 55–68, E from 39–54, F from 21–38 and G from 1–20.

Registered social landlord

Registered social landlord is the general name for not-for-profit housing providers approved and regulated by the government through the Housing Corporation. Most registered social landlords are also known as housing associations.

8 Summary of the methods used to develop this guideline

Introduction

The reviews, primary research, commissioned reports and economic modelling report include full details of the methods used to select the evidence (including search strategies), assess its quality and summarise it.

The minutes of the Public Health Advisory Committee (PHAC) meetings provide further detail about the Committee's interpretation of the evidence and development of the recommendations.

Guideline development

The stages involved in developing public health guidelines are outlined in the box below.

1. Draft scope released for consultation
2. Stakeholder comments used to revise the scope
3. Final scope and responses to comments published on website
4. Evidence reviews and economic modelling undertaken and submitted to PHAC
5. PHAC produces draft recommendations
6. Draft guideline (and evidence) released for consultation (and for fieldwork)
7. PHAC amends recommendations
10. Final guideline published on website
11. Responses to comments published on website

Key questions

The key questions were established as part of the [scope](#). They formed the starting point for the reviews of evidence and were used by the PHAC to help develop the recommendations. The overarching questions were:

Question 1: Which subpopulations are more vulnerable to cold temperatures and poorly heated or expensive-to-heat homes? What factors contribute to vulnerability and how do these factors interact with each other?

Question 2: How effective and cost effective are interventions and approaches to reduce [excess winter deaths](#) and morbidity and the negative health consequences of cold weather and cold homes?

- How effective are these interventions?

- How does effectiveness vary according to demographic, geographic, health, housing and socioeconomic characteristics?
- What effect do these interventions have on health inequalities?
- What effect do these interventions have on the wider determinants of health (for example, carbon dioxide emissions)?
- What adverse effects are associated with changes to energy efficiency or the cost of heating? (For example, reduced ventilation may be associated with increased levels of indoor air pollution, including radon, and overheating may be associated with an increased risk of cot death.)

Question 3: What systems and strategies have been used to identify vulnerable and at-risk populations and what effect do they have?

- What activities and interventions support effective delivery and implementation of approaches to reduce excess winter deaths and the negative health consequences of cold weather?
- What influences the effectiveness of an integrated approach to addressing risk and vulnerability?
- What are the most effective methods for reaching at-risk and vulnerable subpopulations?
- What approaches increase uptake and enhance the acceptability of effective interventions?
- What facilitators and barriers influence delivery and implementation?

These questions were made more specific for each review.

Reviewing the evidence

Effectiveness reviews

Three [reviews](#) were conducted:

- Review 1: 'Factors determining vulnerability to winter- and cold weather-related mortality/morbidity'.
- Review 2: 'Interventions and economic studies'.

- Review 3: 'Delivery and implementation of approaches for the prevention of excess winter deaths and morbidity'.

Identifying the evidence

The literature search involved searching a range of databases and grey literature resources. Databases searched included: Avery Index, HMIC, ICONDA International MEDLINE, PsycINFO, Social Science Citation Index and Social Policy and Practice. The searches were limited to the last 20 years (1993 to October 2013) and to English language publications. See [reviews 1–3](#).

Details of the search strategies are given in the reviews.

Selection criteria

Inclusion and exclusion criteria for each review varied and details can be found in [reviews 1–3](#).

See each review for details of the inclusion and exclusion criteria.

Quality appraisal

Included papers were assessed for methodological rigour and quality using the NICE methodology checklist, as set out in [Methods for the development of NICE public health guidance](#). Each study was graded (++, +, –) to reflect the risk of potential bias arising from its design and execution.

Study quality

++ All or most of the checklist criteria have been fulfilled. Where they have not been fulfilled, the conclusions are very unlikely to alter.

+ Some of the checklist criteria have been fulfilled. Those criteria that have not been fulfilled or not adequately described are unlikely to alter the conclusions.

– Few or no checklist criteria have been fulfilled. The conclusions of the study are likely or very likely to alter.

Summarising the evidence and making evidence statements

The review data were summarised in evidence tables (see the reviews in [Supporting evidence](#)). The findings from the studies were synthesised and used as the basis for a number of evidence statements relating to each key question. The evidence statements were prepared by the external contractors (see [Supporting evidence](#)).

The statements reflect their judgement of the strength (quality, quantity and consistency) of evidence and its applicability to the populations and settings in the scope.

Commissioned reports

[Expert papers](#) were also commissioned. These were:

- ‘Alzheimer’s and dementia in relation to cold homes and excess winter mortality and morbidity’
- ‘Children’s health and wellbeing and cold homes’
- ‘Benefit changes, fuel poverty and disability’
- ‘Working in local partnerships to address the impact of cold homes’
- ‘OFGEM’s vulnerable consumer strategy and related initiatives’
- ‘The role of CCGs in addressing the impact of cold homes’
- ‘Policy update and the ECO’
- ‘The role of energy companies in addressing the impact of cold homes’.

Cost effectiveness

There was a review of economic evaluations and an economic modelling exercise. See review 2 [Interventions and economic studies](#) and [Excess winter deaths: economic modelling report](#).

Economic modelling

A model was developed to quantify the changes in indoor environmental conditions associated with energy efficiency interventions (improvements to the building fabric and ventilation control). The model also aimed to explore

the potential impact of being able to afford more effective heating due to a fuel subsidy.

An economic model was constructed to incorporate data from the reviews of effectiveness and cost effectiveness. The results are reported in Excess winter deaths: economic modelling [report](#).

Economic analysis was undertaken from different perspectives including the NHS, NHS and local government, householder and societal. The risks and benefits associated with home energy efficiency measures and a fuel subsidy were quantified using a complex chain of assumed causal linkages. For some links, the evidence base was limited and the results are therefore uncertain.

The model did not address potential non-health benefits, such as the carbon savings resulting from the modelled changes in energy demand. This means the benefits may have been underestimated.

The results indicated that using home energy efficiency measures, combined with a fuel subsidy, was cost effective. Home energy efficiencies alone were more cost effective than a fuel subsidy. Greater health benefits were achieved when the former were targeted at households with a low [standard assessment procedure](#).

How the PHAC formulated the recommendations

At its meetings between October 2013 and April 2014, the Public Health Advisory Committee (PHAC) considered the evidence, expert report and cost effectiveness to determine:

- whether there was sufficient evidence (in terms of strength and applicability) to form a judgement
- where relevant, whether (on balance) the evidence demonstrates that the intervention, programme or activity can be effective or is inconclusive
- where relevant, the typical size of effect
- whether the evidence is applicable to the target groups and context covered by the guideline.

The PHAC developed recommendations through informal consensus, based on the following criteria:

- Strength (type, quality, quantity and consistency) of the evidence.
- The applicability of the evidence to the populations and settings referred to in the scope.
- Potential effect on the target population's health, and the size of the effect.
- Effect on inequalities in health between different groups of the population.
- Equality and diversity legislation.
- Ethical issues and social value judgements.
- Cost effectiveness (for the NHS and other public sector organisations).
- Balance of harms and benefits.
- Ease of implementation and any anticipated changes in practice.

Where possible, recommendations were linked to evidence statements (see [The evidence](#) for details). Where a recommendation was inferred from the evidence, this was indicated by the reference 'IDE' (inference derived from the evidence).

9 The evidence

Introduction

The [evidence statements](#) from 3 reviews are provided by the London School of Hygiene and Tropical Medicine.

This section lists how the evidence statements and expert papers link to the recommendations and sets out a brief summary of findings from the economic analysis.

How the evidence and expert papers link to the recommendations

The evidence statements are short summaries of evidence, in a [review, report or paper](#) (provided by an expert in the topic area). Each statement has a short code indicating which document the evidence has come from.

Evidence statement number 1.1 indicates that the linked statement is numbered 1 in review 1. **Evidence statement number 2.1** indicates that the linked statement is numbered 1 in review 2. **Evidence statement EP1** indicates that expert paper 1 is linked to a recommendation.

Where a recommendation is not taken directly from the evidence statements, but is inferred from the evidence, this is indicated by **IDE** (inference derived from the evidence).

Recommendation 1: evidence statements 1.1, 1.11, 1.13, 2.10, 3.5; EP1, EP3, EP4, EP6, EP7

Recommendation 2: evidence statements 1.1, 1.10, 1.11, 1.12, 1.13, 2.10, 3.5; EP3, EP4, EP6, EP8

Recommendation 3: evidence statements 1.1, 1.10, 1.11, 1.12, 1.13, 2.10; EP3, EP4, EP5, EP6, EP8

Recommendation 4: evidence statements 3.2, 3.5; EP3, EP4, EP6, EP7

Recommendation 5: evidence statements 1.3, 1.6, 1.9, 1.12, 1.14, 2.1, 2.3, 2.7; EP1, EP2, EP3, EP4

Recommendation 6: evidence statement 3.5; EP4, EP6, EP8

Recommendation 7: evidence statements 2.6, 3.2; EP8

Recommendation 8: EP4, EP6

Recommendation 9: evidence statement 3.5; EP4, EP6

Recommendation 10: evidence statement 3.5; EP4, EP8

Recommendation 11: EP4

Recommendation 12: evidence statements 2.6, 3.5; EP3, EP4, EP5, EP6

Recommendation 13: evidence statement 2.10; IDE

Economic modelling

Providing home heating and insulation interventions to households where someone has chronic obstructive pulmonary disease, heart disease or is older than 65 was found to be cost effective from the perspective of the health sector. (This assumes that the health sector does not bear the full costs of the physical changes to the building fabric.) In some cases, the full cost of the intervention could potentially be justified solely on the basis of the health benefits alone.

One of the key factors in determining cost effectiveness is whether the potential indoor air pollution caused by altering ventilation rates during energy efficiency upgrades can be avoided. (If ventilation is poor and this leads to health problems, the interventions will not necessarily be cost effective.)

The modelling compared programmes targeting low SAP homes where people were at risk of ill health with programmes aimed at all homes where people were at risk of ill health. The targeted approach was much more cost effective.

Fuel subsidies are less cost effective than home energy efficiency measures, but the former may be more suitable over shorter time frames. That's because they avoid a large capital investment cost for people who may have a comparatively short life expectancy, or who expect to move home in a comparatively short period.

Quantification of the risks and benefits associated with home energy efficiency and fuel subsidy interventions is based on a model involving a complex chain of assumed causal links. For some of those links, the evidence base is limited and the results should, therefore, be interpreted as indicative only. However, they do provide a guide to the relative merits of broad interventions.

The specific scenarios considered and the full results can be found in the economic modelling [report](#).

10 Gaps in the evidence

The Public Health Advisory Committee (PHAC) identified a number of gaps in the evidence related to the programmes under examination based on an assessment of the evidence. These gaps are set out below.

1. It is not clear to what extent cold-related deaths are primarily a seasonal or a temperature-related phenomenon. For some conditions, there is a clear medical reason why cold causes or exacerbates them (for example, cardiovascular-related conditions). This is not true in other cases (for example, Alzheimer's disease).

(Source: Evidence review 1)

2. There are no accurate estimates of the degree to which various diseases can be attributed to cold temperatures in the UK. This includes how long a period of cold weather is needed before these diseases emerge.

(Source: Evidence review 1)

3. It is uncertain to what extent vulnerability to the cold relates to outdoor or indoor temperatures in the UK. Associated with this, it is unknown to what degree indoor temperature may affect outdoor temperature and ill-health.

(Source: Evidence review 1)

4. There is a lack of rigorous, UK-based epidemiological evidence on the degree to which different types of housing energy efficiency modify the risk of cold temperature-related deaths and illnesses.

(Source: Evidence review 2)

11 Membership of the Public Health Advisory Committee and the NICE project team

Public Health Advisory Committee C

NICE has set up several Public Health Advisory Committees (PHACs). These standing committees consider the evidence and develop public health guidelines. Membership is multidisciplinary, comprising academics, public health practitioners, topic experts and members of the public. They may come from the NHS, education, social care, environmental health, local government or the voluntary sector. The following are members of PHAC C:

Chair

Gina Radford

Centre Director for Anglia and Essex, Public Health England

Core members

Ross Cowan

Community core member

Eileen Kaner

Professor of Public Health Research, Newcastle University

Stephen Morris

Professor of Health Economics, University College London

Jasmine Murphy

Consultant in Public Health, Leicester City Council

Kamran Siddiqi

Clinical Senior Lecturer, University of York

David Sloan

Retired Director of Public Health

Topic members

Barbara Hanratty

Clinical Senior Lecturer, Hull York Medical School, University of York

Raymond Jankowski

Deputy Director of Public Health, NHS Hertfordshire

John Kolm-Murray

Seasonal Health & Affordable Warmth Coordinator, London Borough of Islington

Christine Liddell

Professor of Psychology, University of Ulster

Andrew Probert

Community topic member

Simon Roberts

Chief Executive, Centre for Sustainable Energy

Expert testimony to PHAC

Tim Anfilogoff

Programme manager, Hertfordshire valleys Clinical Commissioning Group

Gareth Baynham-Hughes

Deputy Director, Fuel Poverty, DECC

Martin Chadwick

Chief Officer, Beat the Cold

Philip Cullum

Partner, Consumer Policy and Demand Side Insight, OFGEM

Christine Liddell

Professor, School of Psychology, University of Ulster

Carolyn Snell

Lecturer in Social Policy, The University of York

Neil Walker

Energy and Renewal Surveyor, Watford Borough Council

Maria Wardrobe

Director of External Affairs, National Energy Action

NICE project team

Mike Kelly

CPH Director

Jane Huntley

Associate Director

Hugo Crombie

Lead Analyst

Andrew Hoy

Analyst

Karen Peplow

Analyst

Kim Jeong

Technical Adviser, Health Economics

Patricia Mountain

Project Manager

Rukshana Begum

Coordinator

Sue Jelley

Senior Editor

Susie Burlace

Editor

About this guideline

What does this guideline cover?

The Department of Health (DH) asked the National Institute for Health and Care Excellence (NICE) to produce this guideline on [excess winter deaths](#) (see the [scope](#)).

The absence of any recommendations on interventions that fall within the scope of this guideline is a result of lack of evidence. It should not be taken as a judgement on whether they are cost effective.

How was this guideline developed?

The recommendations are based on the best available evidence. They were developed by the Public Health Advisory Committee (PHAC).

Members of the PHAC are listed in [Membership of the Public Health Advisory Committee and the NICE project team](#).

For information on how NICE public health guidelines are developed, see the NICE [public health guideline process and methods guides](#).

What evidence is the guideline based on?

The [evidence](#) that the PHAC considered included:

- Evidence reviews:
 - Review 1: 'Factors determining vulnerability to winter- and cold weather-related mortality/morbidity' was carried out by the London School of Hygiene and Tropical Medicine. The principal authors were: James Milner, Zaid Chalabi and Paul Wilkinson.
 - Review 2: 'Interventions and economic studies' was carried out by the London School of Hygiene and Tropical Medicine. The principal authors were: James Milner, Zaid Chalabi and Paul Wilkinson.
 - Review 3: 'Delivery and implementation of approaches for the prevention of excess winter deaths and morbidity' was carried out by the London

School of Hygiene and Tropical Medicine. The principal authors were:
James Milner, Zaid Chalabi and Paul Wilkinson

- Economic modelling
 - ‘Excess winter deaths: economic modelling report’ was carried out by the London School of Hygiene and Tropical Medicine. The principal authors were: James Milner, Ian Hamilton and Zaid Chalabi Z
- Expert papers
 - Expert paper 1: ‘Alzheimer’s and dementia in relation to cold homes and excess winter mortality and morbidity’. The principal author was Christine Liddell, University of Ulster
 - Expert paper 2: ‘Children’s health and wellbeing and cold homes’ by Christine Liddell, University of Ulster
 - Expert paper 3: ‘Benefit changes, fuel poverty and disability’ by Carolyn Snell, University of York
 - Expert paper 4: ‘Working in local partnerships to address the impact of cold homes’ by Martin Chadwick, Beat the Cold
 - Expert paper 5: ‘OFGEM’s vulnerable consumer strategy and related initiatives’ by Phillip Cullum, OFGEM
 - Expert paper 6: ‘The role of CCGs in addressing the impact of cold homes’ by Tim Anfilogoff, Hertfordshire Valleys Clinical Commissioning Group and Neil Walker, Watford Borough Council
 - Expert paper 7: ‘Policy update and the ECO’ by Gareth Baynham-Hughes and Fern Leathers, DECC
 - Expert paper 8: ‘The role of energy companies in addressing the impact of cold homes’ by Maria Wardrobe, National Energy Action.

Note: the views expressed in the expert papers above are the views of the authors and not those of NICE.

In some cases the evidence was insufficient and the PHAC has made recommendations for future research. For the research recommendations and gaps in research, see [Recommendations for research](#) and [Gaps in the evidence](#).

Status of this guideline

This is a draft guideline. The recommendations made in section 1 are provisional and may change after consultation with [stakeholders](#).

This document does not include all sections that will appear in the final guideline. The stages NICE will follow after consultation are summarised below.

- The Committee will meet again to consider the comments, reports and any additional evidence that has been submitted.
- After that meeting, the Committee will produce a second draft of the guideline.
- The draft guideline will be signed off by the NICE Guidance Executive.

The key dates are:

- Closing date for comments: 25 July 2014.
- Next PHAC meeting: 16–17 September 2014.

All healthcare professionals should ensure adults have a high quality experience of the NHS by following NICE's recommendations in [Patient experience in adult NHS services](#).

All health and social care providers working with people using adult NHS mental health services should follow NICE's recommendations in [Service user experience in adult mental health](#).

The recommendations should be read in conjunction with existing NICE guidance unless explicitly stated otherwise. They should be implemented in light of duties set out in the [Equality Act 2010](#).

NICE produces guidance, standards and information on commissioning and providing high-quality healthcare, social care, and public health services. We have agreements to provide certain NICE services to Wales, Scotland and Northern Ireland. Decisions on how NICE guidance and other products apply in those countries are made by ministers in the Welsh government, Scottish

government, and Northern Ireland Executive. NICE guidance or other products may include references to organisations or people responsible for commissioning or providing care that may be relevant only to England.

Implementation

NICE guidelines can help:

- Commissioners and providers of NHS services to meet the requirements of the [NHS outcomes framework 2013–14](#). This includes helping them to deliver against domain 1: preventing people from dying prematurely.
- Local health and wellbeing boards to meet the requirements of the [Health and Social Care Act \(2012\)](#) and the [Public health outcomes framework for England 2013–16](#).
- Local authorities, NHS services and local organisations determine how to improve health outcomes and reduce health inequalities during the joint strategic needs assessment process.

NICE will develop tools to help organisations put this guideline into practice. Details will be available on our website after the guideline has been issued.

Updating the recommendations

This section will be completed in the final document