



 | Health Matters

Cold weather and COVID-19



Cold weather and COVID-19

1. The health impacts of exposure to cold weather

The risk of death increases as temperatures fall, so periods of very low temperatures can cause significant harm. However, adverse impacts on health are seen even at outdoor temperatures that might be considered relatively mild (4 to 8°C).

Exposure to cold temperatures has a range of physiological effects, including increased blood pressure and risk of clotting, suppression of the immune system, diminished capacity of the lungs to fight off infection and narrowing of airways.

Cold temperatures and winter weather can have direct and indirect effects on our health and some groups are particularly vulnerable, including:

- older people and especially those over 65 years old
- people with pre-existing chronic medical conditions
- people living in deprived circumstances
- people with cognitive impairment, mental health conditions or learning difficulties
- people who are living in cold homes and/or are experiencing fuel poverty, homelessness or rough sleeping

Many of these groups are also at greater risk of severe illness from COVID-19, as well as other winter illnesses such as flu. Therefore, it is more important than ever that those most vulnerable to cold temperatures are protected this year.

The direct and indirect health effects of winter weather



The human body responds in several different ways to exposure to cold weather, even at temperatures that might be considered relatively mild:

4 to 8°C

Direct effects:

- heart attack
- stroke
- respiratory disease
- influenza
- falls and injuries
- hypothermia

Indirect effects:

- snow and ice may cause disruption to healthcare services
- cold homes and fuel poverty are linked with poor mental health and social isolation
- reduced education and employment success
- carbon monoxide poisoning



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2. Excess winter deaths

Excess winter deaths (EWDs) – the difference between average daily deaths in winter months (December to March) versus other months – occur throughout England. There are on average around 35,000 EWDs each year in England and Wales, but large fluctuations in EWDs between years are common.

We may assume that hypothermia is the primary cause of cold-related death, however respiratory and circulatory (lung and heart) conditions, as well as dementia and Alzheimer's are the leading causes of the observed EWDs.

There are a number of complex and interlinked factors that contribute to EWDs, including:

- seasonal factors – e.g. weather and circulating infectious diseases
- individual vulnerability to health effects of cold
- attitudes to cold and associated behaviours
- Housing and economic factors – e.g. poorly insulated housing and household income

EWDs also represent a significant health inequality, with people experiencing greater socioeconomic deprivation being more likely to be affected.

Factors that contribute to excess winter deaths

In England and Wales there are on average around

35,000

excess winter deaths (EWD) each year

There are a number of complex and interlinked factors that contribute to excess winter deaths including:

- **seasonal factors** such as the weather and circulating infectious diseases (particularly flu and norovirus)
- **individual vulnerability** to health effects of cold
- **attitudes** to cold and **associated behaviours**
- **housing and economic factors** including inadequate heating, poorly insulated housing, household income, cost of fuel and energy efficiency of the home

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3. COVID-19 and cold weather-related health risks

This will be the first winter that SARS-CoV-2 (the virus that causes COVID-19 disease) will be circulating. It is critical that plans are in place to address the risks that may arise from the concurrence of cold and COVID-19 this winter.

A number of important risk factors are shared across cold weather and COVID-19, which may amplify an individual's risk to both hazards. Clinical risk factors that have been linked with severe illness from COVID-19 that are also risks for cold-related harms include:

- older age, with risk increasing with age
- underlying health conditions, particularly chronic respiratory and cardiovascular disease
- diabetes
- pregnancy

Factors that impact on people's ability to adapt to cold temperatures may also impact their ability to reduce exposure to COVID-19, for example through reduced ability to maintain respiratory and hand hygiene. Groups with increased risk across the two hazards include people living in deprived circumstances, people experiencing homelessness or rough sleeping, and other marginalised or socially isolated individuals or groups.

We still have much to learn about how COVID-19 infection affects the body, however it is possible that clinical outcomes may be more severe where exposure to cold and COVID-19 co-occurs for a given individual.

How COVID-19 can amplify cold weather-related health risks

The potential interactions between **cold weather** and **COVID-19** include:

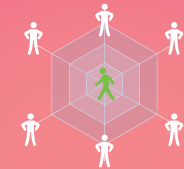


shared risk factors

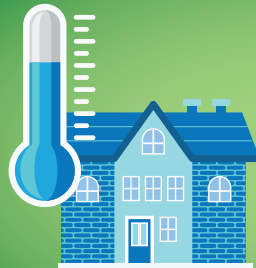
amongst population sub-groups affected by both cold temperatures and COVID-19



clinical impacts arising due to concurrence of cold weather and COVID-19



social isolation and reduced access to support networks and resources



increased exposure to cold temperatures

due to changes in patterns of energy use at home, fuel poverty and reduced access to warm public spaces

system level risks related to concurrency of impacts, change in patterns of health and social care use, access and delivery and health seeking behaviour





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4. Cold weather, housing and fuel poverty

With more than 90% of our time being spent indoors, the home environment is a key determinant of both physical and mental health.

Fuel poverty is one of the major causes of cold homes and is determined by the interaction of 3 key drivers:

- energy efficiency of the household
- energy prices
- income

During the COVID-19 pandemic, increased numbers of people are spending more time at home than usual, which can lead to a higher demand for energy and an increase in associated costs of heating bills. This winter, new groups of people and households may also be drawn into fuel poverty and be unaware of the funds and resources available to help with keeping warm.

Another health harm related to cold weather and housing is transmission of viruses. People spend significantly more time indoors during the winter, and risk of transmission can be amplified in a home by housing factors such as:

- overcrowding, including multiple occupancy and intergenerational households
- poor ventilation, which increases the density of virus particles accumulating in a room

Barriers to ventilation include fuel poverty and living in areas with noise, pollution and security concerns.

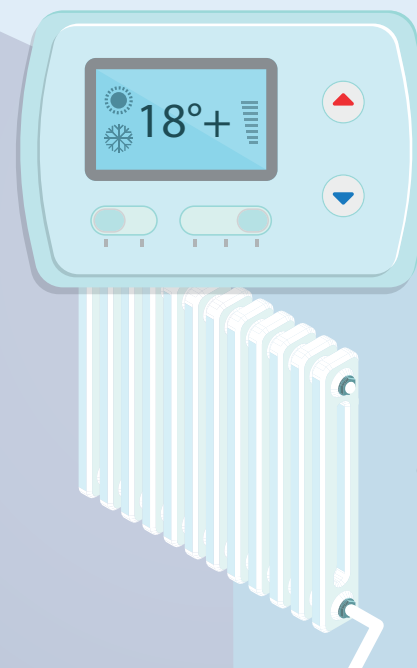
Cold homes and fuel poverty

More than
90% of our time is
spent indoors



Fuel poverty is one of the major causes of cold homes

During the COVID-19 pandemic people will need to spend more time at home leading to higher energy use and costs of heating.



Some households may find themselves in fuel poverty for the first time and be unaware of the help that is available.

When a cold home is also damp, mould is likely to occur. Cold, damp and mould are all linked to impacts on health.

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5. How local authorities can help prevent cold-related harm

This winter, fear of COVID-19 should not prevent action to tackle the risks from cold temperatures and winter weather. It is critical that these preventative actions continue, including identifying and supporting vulnerable people at risk, with necessary adaptations in line with COVID-19 guidance to keep everyone safe.

All local authorities, NHS commissioners and their partner organisations, including health and social care providers, should consider the Cold Weather Plan for England and ensure that the suggested actions and Cold Weather Alert Service are understood across their locality and any additional need has been considered in local planning.

Local authorities can help prevent cold-related harm in a range of ways, including:

- providing a single-point-of-contact for help
- ensuring that vulnerable people are discharged from care settings to a warm home
- raising awareness about how to keep warm at home
- training people to help individuals whose homes may be too cold

They should also Make Every Contact Count, which requires ensuring that health and home care practitioners and non-health and social care workers assess the heating needs of people who use their services.

How local authorities can help prevent cold-related harm

