INSTITUTE of HEALTH EQUITY

FUEL POVERTY, COLD HOMES AND HEALTH INEQUALITIES IN THE UK

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KEY MESSAGES

RATES OF FUEL POVERTY

- A household experiences fuel poverty if they are on a low income and face high costs of keeping adequately warm and ensuring other basic energy services.
- Fuel poverty is driven by three main factors: household income, the current cost of energy and the energy efficiency of a home.
- One in five UK households containing dependent children experienced fuel poverty in 2020.
- Rates of fuel poverty have increased since summer 2021 largely due to the increasing cost of fuel, which is predicted to continue to rise. By January 2023, it is estimated that 66 per cent, or 18 million households, in the UK will be in fuel poverty unless there are effective interventions to prevent this. Fuel poverty of this extent will have significant negative consequences for health.

FUEL POVERTY, COLD HOMES AND HEALTH INEQUALITIES

- Homes that are cold due to fuel poverty exacerbate health inequalities. Cold homes can cause and worsen respiratory conditions, cardiovascular diseases, poor mental health, dementia, hypothermia and problems with childhood development. In some circumstances, health problems may be exacerbated to a degree that they may cause death.
- In 2019 it was estimated the NHS spends at least £2.5 billion per year on treating illnesses that are directly linked to cold, damp and dangerous homes.
- Cold homes and fuel poverty contribute to the phenomenon of excess winter deaths. England saw an estimated 63,000 excess winter deaths in 2020–21. Estimates suggest that some 10 per cent of excess winter deaths are directly attributable to fuel poverty and 21.5 per cent are attributable to cold homes..
- England's excess winter deaths index is higher than the Northern European average.

INEQUALITIES IN FUEL POVERTY AND RESULTANT POOR HEALTH

- Certain households percent are more likely to be in fuel poverty, including: households living on low incomes, households with dependent children, households home to people living with disabilities, and Minority ethnic households. Certain groups are more likely to experience the health impacts of fuel poverty: older adults, children, and households home to people living with chronic illness and disability.
- The geographical inequality in energy efficiency has also increased: in 2011 there was an 8.5 per cent difference in homes rated band C or above between London (the highest percentage at 46.93 per cent) and the West Midlands (the lowest, at 38.46 per cent).
- In 2021, the difference between London and the West Midlands had increased to 11 per cent, with the percentage of homes rated at band C or above actually falling in the West Midlands since 2011.

POLICIES TO REDUCE FUEL POVERTY

- Prior to the COVID-19 pandemic, national programmes to address fuel poverty were either stalling or receiving reduced funding.
- Rates of installations to improve household energy efficiency to band C or above peaked in 2012 at 2.3 million households per year but have dropped by approximately 90 per cent since then.
- Tackling fuel poverty and health problems related to cold homes is important for reducing health inequalities in the UK. Local authorities and public health are well placed to address issues relating to fuel poverty but reducing fuel poverty also requires national action and resources.
- This report provides many examples of how local areas are tackling fuel poverty and reducing health inequalities, such as: targeting advice services and housing improvements, including improvements in the private rented sector; using urban regeneration to reduce fuel poverty; and partnerships between the NHS, local authorities and housing and beyond to support local populations.

FOREWORD

High fuel costs, rising poverty and the result - cold and damp homes - are damaging health, and the health impacts will accelerate through the winter. In 2014, at the request of Friends of the Earth, the UCL Institute of Health Equity (IHE) looked at the health impacts of fuel poverty and cold homes. The evidence, updated for this new report, shows the profound impact of cold homes on health throughout life including increasing mortality. If fuel poverty and cold homes were a concern in 2014, now, with the rapidly increasing price of energy, they are likely to become a significant humanitarian crisis.

Fuel poverty means cold homes, but it means so much more. Difficulty in making ends meet is a threat to the possibility of living a dignified life. Resort to food banks, desperate attempts to stay warm, inability to meet children's needs, insufficient resources to pay the rent are stresses that damage the health of adults and blight children's development.

A child's lungs play a crucial role in determining his or her health and life expectancy. There is a window of opportunity in childhood for optimal respiratory maturation. This is impaired by problems associated with cold, substandard, or overcrowded housing such as viruses, dust, mould, and pollution. When we add in factors such as cutting back on food to pay the gas bills, and the mental health and educational impact of cold houses, the picture is bleaker still. Without meaningful and swift action cold housing will have dangerous consequences for many children now, and through their life-course.

Lifelong health inequalities take root in childhood – there is no doubt that the standard of a child's house is a key factor. Although this report is timely, given the cost-of-living crisis dominating the news, it would be wrong to think of the current issues around fuel poverty as new, unexpected, or an isolated phenomenon. Millions of households have already been making ever more stark choices about life's essentials to make ends meet.

There is much debate about the nature of the remedy to the problem of fuel poverty: efforts targeted at those living on the lowest incomes or universal solutions. If more than half of households will experience fuel poverty in 2023, efforts aimed at the poorest will not be enough. We need policies that will reduce fuel poverty across the social gradient, with effort proportionate to need – greatest for those most at risk. We call this proportionate universalism.

Of course, there are reasons for fuel poverty: post-pandemic rise in demand, war in Ukraine, obscene profits by companies that produce oil and gas. But the underlying issues are the quality of housing, poverty, and the price of fuel. In a rich country, the idea that more than half of households should face fuel poverty is a sad judgement of the management of our affairs.

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1 WHAT IS FUEL POVERTY AND WHY DOES IT OCCUR?

Fuel poverty occurs when a household cannot afford to adequately heat their home or meet basic energy requirements. Households in fuel poverty are at risk of living in cold homes, which can have significant health consequences, and often experience increasing levels of debt. Fuel poverty is driven by three factors: household income, the affordability of energy, and the energy efficiency of a home. There is no international consensus on how to measure fuel poverty and different approaches within the UK.

FUEL POVERTY ESTIMATIONS AND DEFINITIONS IN THE UK

The most recent UK government estimates suggest a 13.2 per cent rate of fuel poverty for English households (2020), a 14 per cent rate for Welsh households (2021), an 18 per cent rate for Northern Irish households (2018) and a 24.6 per cent rate for Scottish households (2019) (1) (2) (3).

However, even within the UK, fuel poverty definitions and measurements differ across each nation, which makes direct comparisons of prevalence difficult (4):

- **England:** In 2021 the Government redefined fuel poverty for English households. The 'Low Income Low Energy Efficiency' (LILEE) indicator counts a household as fuel-poor if they are living in a property with an energy efficiency rating in band D, E, F or G and their disposable income (income after housing costs and energy needs) is below the relative poverty line (relative poverty being defined as having an income 60 per cent below the median national household income). As annual fuel poverty data reflect levels from two years previously, this definition will impact fuel poverty statistics from 2019 onwards.
- **Wales and Northern Ireland:** The Welsh and Northern Irish Governments determine a household to be fuel-poor if they are spending 10 per cent or more of their total household income to maintain an adequate indoor temperature.
- **Scotland:** The Scottish Government measures fuel poverty by households having to spend more than 10 per cent of their income on heating and their remaining income is inadequate to provide an acceptable standard of living.

It is unclear what prompted the change in the measurements of fuel poverty in England in 2021. As a result of the redefinition, a household in England is not deemed fuel-poor if they live in a property with an energy efficiency rating in band C or above, regardless of whether or not they can afford adequate heating. As such, official figures in England likely underestimate the number of households experiencing fuel poverty using the universal definition (1).

TRENDS IN FUEL POVERTY

From 2013 to 2018, the Office for National Statistics (ONS) estimated levels of fuel poverty in England were relatively stable, with approximately one in 10 households (10–11 per cent) being in fuel poverty each year (5). The rate increased to 13.4 per cent in 2019 and then declined slightly to 13.2 per cent in 2020 (2) (6); however, as a result of the redefinition of fuel poverty in 2021, these rates cannot be compared with previous years (1).

Since 2020 rates of fuel poverty have risen rapidly, following the global COVID-19 pandemic. Increasing fuel prices, lower wages and 'lockdown' restrictions confining people to their homes have all contributed to worsening trends (7). In the spring of 2022 National Energy Action, a national fuel poverty charity, estimated 6.5 million households across the UK (23.4 per cent of all households) were in fuel poverty – an increase from their estimate of 4 million in October 2021 (4). It is expected that by October 2022, up to 32 per cent of England's households, or 7.5 million families, will be in fuel poverty unless there is effective preventative intervention. This rate of fuel poverty will have damaging and significant consequences for health and will widen health inequalities in the UK (8). By January 2023, with further increases anticipated in the cost of gas and electricity, it is estimated 66 per cent, or 18 million, of the UK's households will be in fuel poverty (9).

[1]Prior to this change, fuel poverty in England was measured using the Low Income High Cost (LIHC) indicator: households were classed as fuel-poor if their required fuel costs were above the national median level, and if their residual income after fuel costs was below the poverty line.

In 2021 and 2022 the global price of fuel increased rapidly, and in response the 'energy price cap' was increased in England, Wales and Scotland. The Office of Gas and Electricity Markets (Ofgem) regulates the energy industry in the UK. Each year, it sets an 'energy price cap', which limits the maximum amount a supplier can charge for a unit of electricity or gas. The cap increased by 12 per cent in October 2021, 54 per cent in April 2022, and will increase a further 80 per cent in October 2022, meaning an average annual fuel bill of £3,549, largely in response to rapid increases in wholesale gas prices for suppliers (10). This increase will in turn rapidly raise the rates of fuel poverty as households pay substantially more to warm their homes to adequate temperatures.

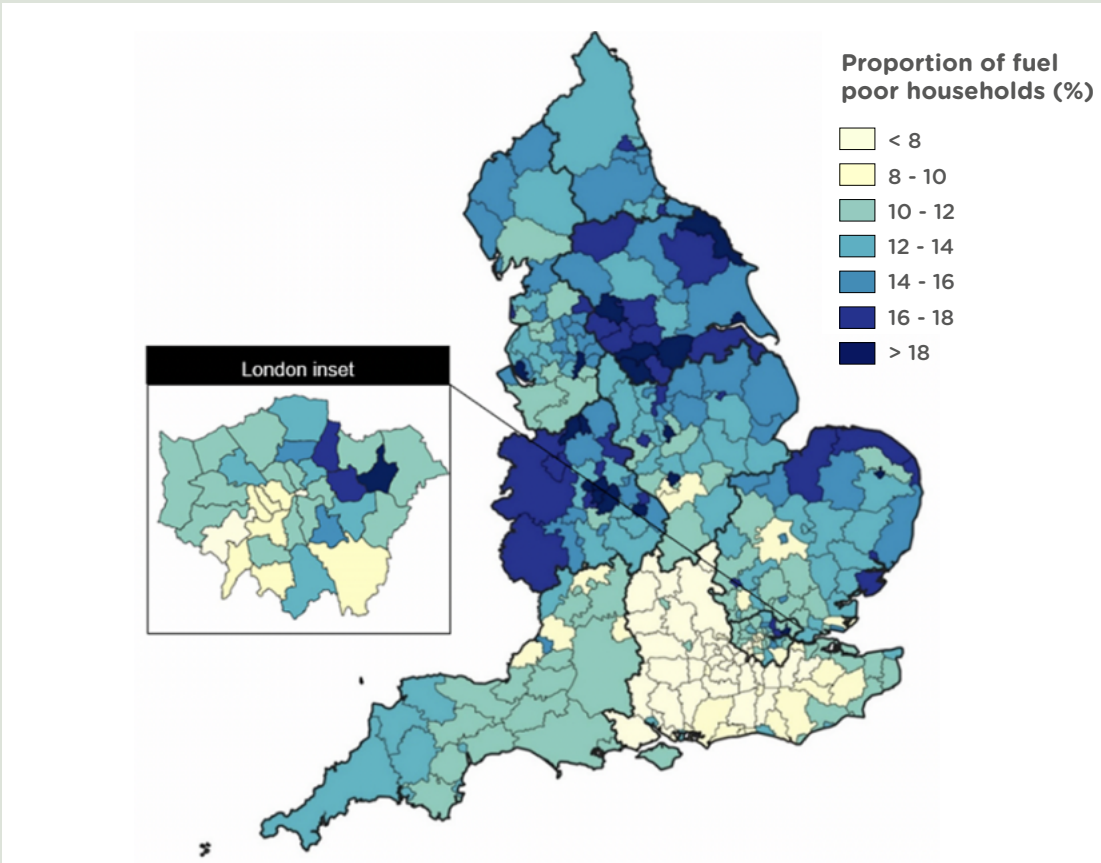
Alongside the rising price of fuel, the COVID-19 pandemic has had a significant impact on the organisations that support people in fuel poverty. A survey of these organisations found fewer of these services (e.g. smart meter installations) available to people living in fuel poverty compared with other households (11) (12). From 2020–2021 the quality of housing in the UK also worsened as social distancing measures to control the virus delayed essential repairs (13). As a result, at the height of the pandemic and in the period afterwards, the increasing number of fuel-poor families living in cold homes had less recourse to make essential repairs and heat their homes adequately and their access to warmer public spaces was limited by lockdown measures.

INEQUALITIES IN FUEL POVERTY

Fuel poverty is related to low income and therefore reflects levels of deprivation across the country. Fuel poverty is also related to properties' energy efficiency and access to mains gas.

In England, levels of fuel poverty vary across local authorities. There is more incidence in Northern and some coastal regions (Figure 1). Households in the North and the Midlands are more likely to fall into fuel poverty than those in other regions, with almost a quarter of households in the North East classed as fuel-poor in summer 2022 (8).

Figure 1. Proportion of households in fuel poverty by local authority, England, 2020



Source: *Department for Business, Energy & Industrial Strategy (14)*

Fuel poverty also varies across tenure type. In 2020, the rate varied from 25 per cent of privately rented homes, to 18 per cent of socially rented homes and less than 10 per cent of owner-occupied homes (2). Social housing, which is more likely to be occupied by low-income households, has better energy efficiency on average than privately rented or owner-occupied homes (15). However, the new measurement of fuel poverty in England means that many families who live in social (and therefore more energy efficient) housing and are struggling with increasing fuel bills will not be classed as fuel-poor.

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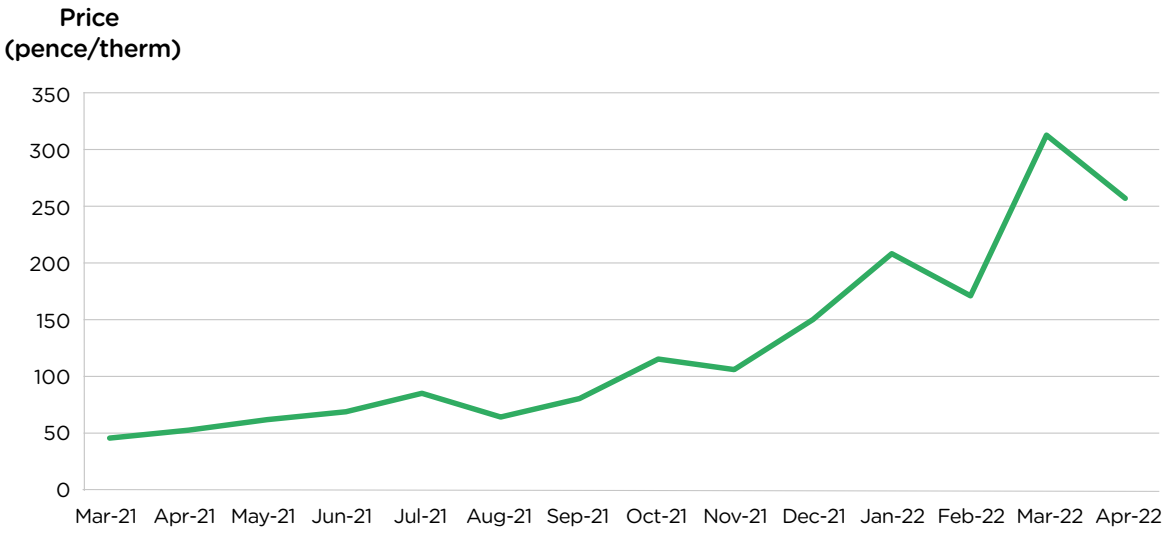
2 THE DRIVERS OF FUEL POVERTY

THE PRICE OF FUEL

The real-term price of fuel in the UK rose steeply during the economic recession that began with the 2008 financial crisis. The average annual fuel bill increased from £605 in 2004 to £1,306 in 2013 (16). From 2013 to 2019, the overall cost of fuel stabilised, with the average annual fuel bill in 2019 standing at £1,289 (17).

The COVID-19 pandemic caused an unprecedented drop in demand and therefore production of gas across the world (18). The subsequent rapid increase in demand as economies recovered during the latter half of 2021, with further steep rises in February 2022, led to a six-fold increase in wholesale prices between March 2021 and March 2022 (Figure 2) (19). Between 2010 and 2021, wholesale gas prices in pence per therm fluctuated between around 25p and 87p – and at no point rose above £1. In the first half of 2020, prices dropped to 11.59p (the lowest since 2010) before rising (20).

Figure 2. Average gas prices based on forward delivery contracts shown as pence per therm, UK, March 2021–April 2022



Source: *Ofgem (21)*

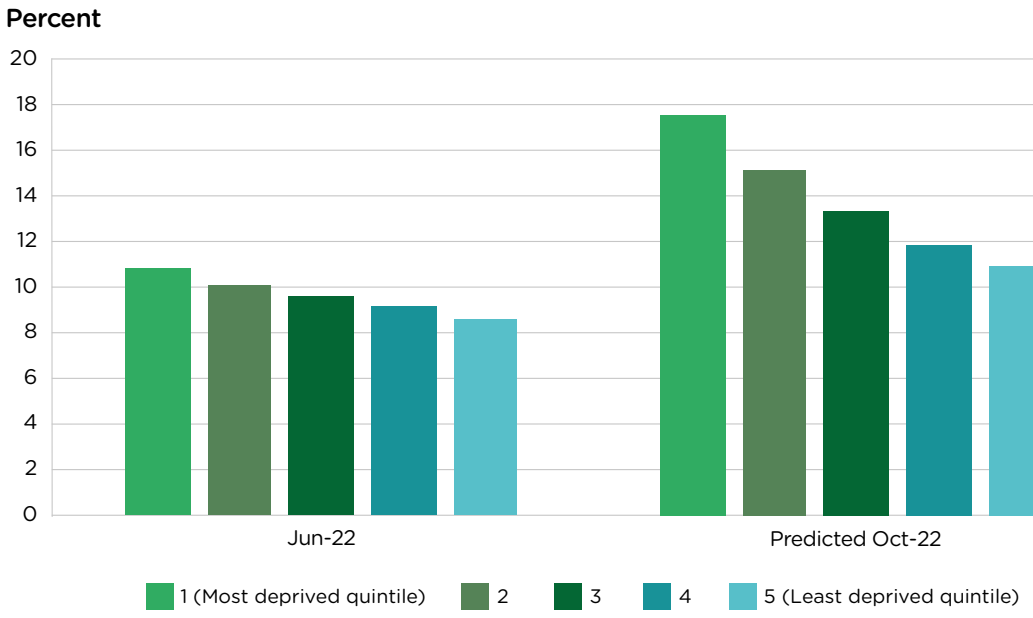
HOUSEHOLD INCOME AND WEALTH

There has been a steady decline in real wages in recent years. Since 2008, the rate of inflation has grown faster than in previous decades, while the rate of nominal wage growth has begun to slow. By June 2022, inflation hit a 40-year high (22). The biggest increases in cost have been seen in transport, housing and household services, and food (23). Families struggling with the increased cost of fuel are therefore simultaneously facing increased costs for all other basics, driving the so-called 'heat or eat' dilemma (24). In May 2022 the Government announced a package of support to address the increasing energy prices with five main strands:

- £400 to all households, labelled as an 'energy discount' that will be subtracted from energy bills.
- £150 for all households in council tax bands A–D (representing around 80% of households).
- £650 for any family on means-tested benefits.
- £300 for pensioners.
- £150 for those in receipt of a disability benefit.

However, analysis shows this support is not adequate to cover the increasing costs, nor does it effectively target those living in low-income households (25). The support offered has not matched the increasing rate of inflation, which is affecting the poorest the hardest. In October 2022 it is estimated inflation will rise to 18 per cent in the most deprived households while those in the least deprived households will face rates of 11 per cent (Figure 3).

Figure 3. Inflation by income quintile, UK, June 2022 and prediction October 2022



Source: *Institute for Fiscal Studies based on Office for National Statistics (26)*

Inflation has also had a negative effect on real wages: despite median income in 2019 being 2.9 per cent higher than in 2018, real wages were lower at the start of the pandemic than they had been a decade earlier (27). As inflation has risen, real-terms pay has continued to fall. Between April and June 2022, average pay declined by 3 per cent, as a result of increasing inflation (28). Households that rely on benefits as income experienced the biggest reductions in income due to welfare reforms; the Institute for Fiscal Studies reported in 2017 that there was a reduction in net income, mostly driven by changes in benefits, for the poorest 50 per cent of households from 2010–2015 (29). The Institute for Fiscal Studies estimated that higher energy prices and rising inflation will see working-age families without a working adult and that are receiving benefits experiencing a fall of about £620 in their real benefit income from 2021–22 to 2022–23, despite the support offered by the Government in May 2022 (26). Consequently, despite the stable cost of fuel pre-pandemic, real incomes were in decline pre-pandemic, making it more difficult to heat homes even before the rises in fuel prices in 2022.

EFFECTS OF COVID-19 PANDEMIC

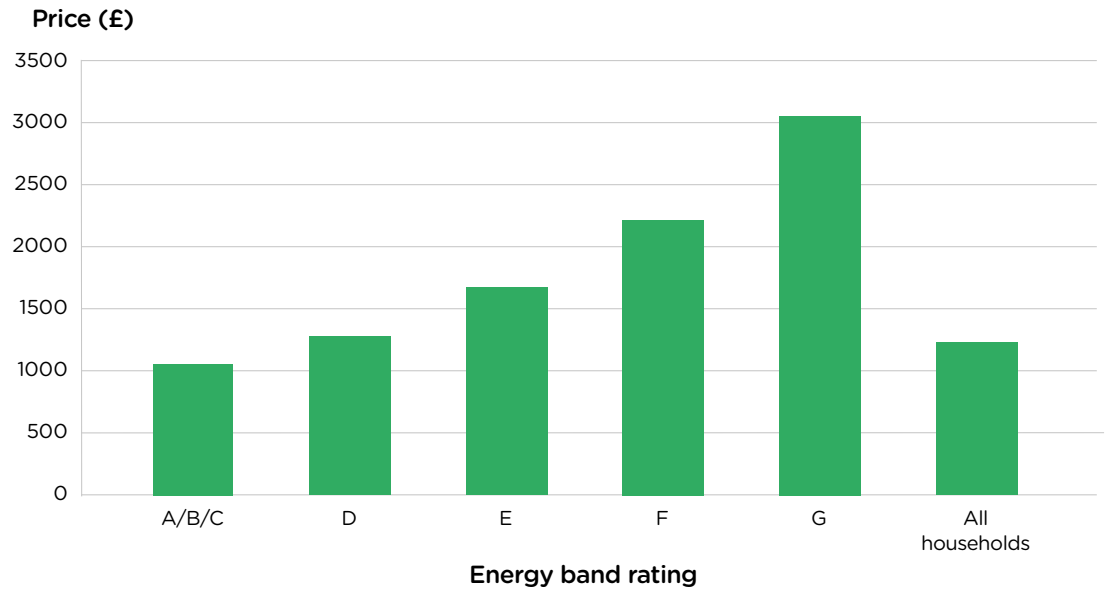
The social distancing measures put in place to control the spread of COVID-19 led to a significant decrease in average weekly earnings, but the reduction in income was not distributed equally (28). In 2021, people living in the poorest quintile in the UK saw an average reduction of -3.6 per cent in disposable income, compared with -0.6 per cent for those in the richest quintile (30). During the pandemic, a £20 per week 'uplift' to Universal Credit Standing Allowance and Working Tax Credit was instated, which the Government removed in October 2021. In August 2020, Citizens Advice estimated 2.8 million adults in the UK had fallen behind on their energy bills since the start of the pandemic (31). In a YouGov poll in January 2022, 37 per cent of respondents said they could not afford to heat their home to a comfortable temperature when it was cold outside – rising to half of those with household incomes of less than £15,000 a year (32).

THE ENERGY EFFICIENCY OF HOMES

Older homes tend to be much less energy-efficient than newly built homes due to insufficient insulation, old boiler systems and general wear and tear (33). As such, older homes often require retrofitting to improve energy efficiency, which can be prohibitively expensive (34). The relatively low standard of energy efficiency across England's older housing stock therefore means that heating a home can be difficult and/or expensive, particularly for those on low incomes.

Energy efficiency is assessed by a Standard Assessment Procedure which provides an Energy Performance Certificate (EPC) banding: A, the highest score, represents the most energy-efficient and has the lowest average energy costs (Figure 4).

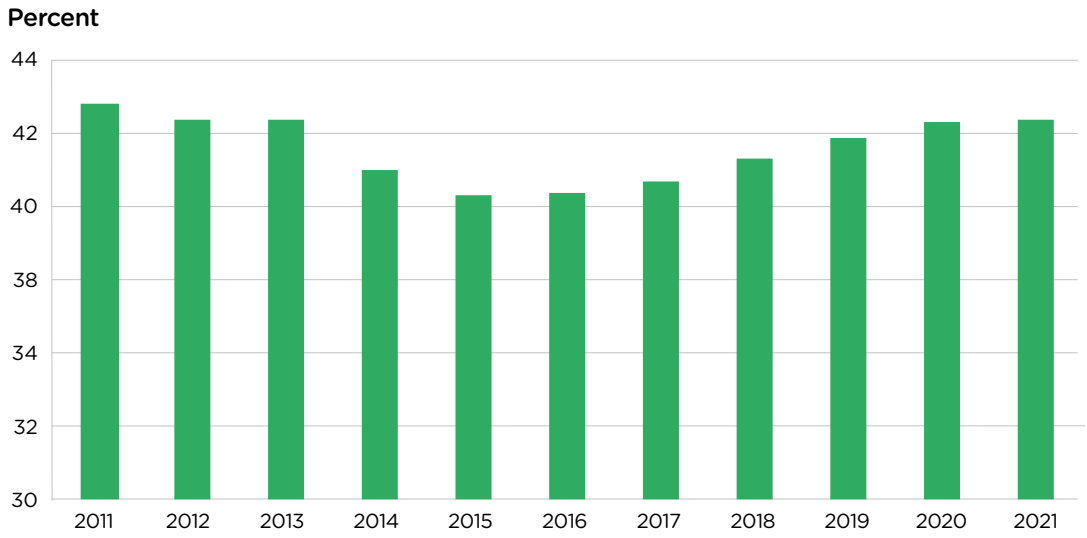
Figure 4. Median estimated total energy costs per year by Standard Assessment Procedure (SAP) rating, price (£), England, 2019



Source: *Office for National Statistics (19)*

The median score for home energy efficiency in England and Wales for the year ending March 2021 was 66 (band D), having stood at 65–66 for the past decade despite various programmes aimed at improving this outcome (35). The percentage of homes assessed and given an EPC band C or higher dropped between 2011 and 2015 but slowly rose between 2015 to 2021 (Figure 5).

Figure 5. Percentage of homes at EPC Band 'C' or above, for all homes, for EPC lodgements, England, 2011–2021



Source: *Office for National Statistics (35)*

Improvements in energy efficiency over the past 20 years or so have been driven mostly by retrofitting existing stock with double glazing, boiler upgrades and insulation. Homes built after 2012 are more energy-efficient than previous housing stock, with a median EPC band B, and make up approximately 15 per cent of homes (36) (37).

The geographical inequality in energy efficiency has also increased: in 2011 there was an 8.47 per cent difference in households rated band C or above between London (the highest percentage at 46.93 per cent) and the West Midlands (the lowest, at 38.46 per cent). By 2021, the difference between London and the West Midlands had increased to 11 per cent, with the percentage homes rated band C and above having fallen in the West Midlands (37).

In England, the English Housing Survey shows approximately 65 per cent of households live in owner-occupied homes, 19 per cent in socially rented homes and 17 per cent in privately rented homes. In 2021, socially rented properties were more likely than privately rented to be energy-efficient, with a median EPC score of 69 (band C). As stated earlier, privately rented properties have the worst median energy efficiency in England once property type is considered, whereas owner-occupied homes score the lowest if property type is not accounted for. The 2020/21 English Housing Survey found 6 per cent of privately rented homes had problems with damp, compared with 4 per cent of socially rented and 2 per cent of owner-occupied homes. The survey also concluded that the least energy-efficient homes were more likely to have 'Category 1' hazards according to the Housing Health and Safety Rating System, including damp (36). Older properties, which are more likely than newer homes to be energy-inefficient, are also at greater risk of damp.

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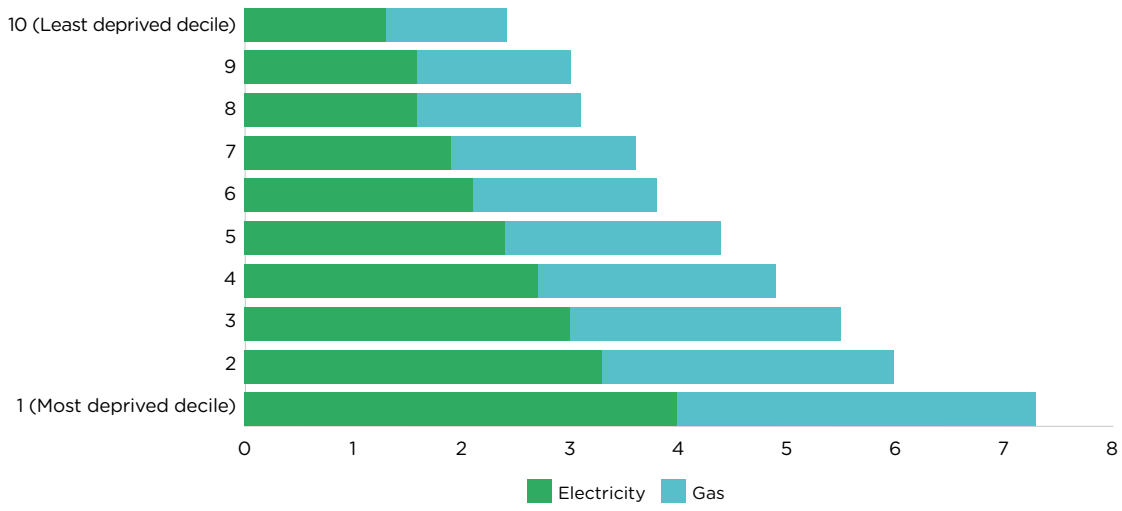
3 HOUSEHOLDS PARTICULARLY AT RISK OF FUEL POVERTY

LOW-INCOME HOUSEHOLDS

Households with the least disposable income spend more of their income on heating and fuel than better-off households. In 2020, those in the bottom income decile spent 7.3 per cent of their income on gas and electricity, three times the percentage spent by those with the highest income, who spent 2.4 per cent of their income on gas and electricity (Figure 6) (2). These proportions will continue to rise rapidly due to increasing fuel costs and inflation and stagnant wages.

Figure 6. Household expenditure on energy as a percentage of total expenditure, by equivalised disposable income group (deciles), England, 2020



Source: *Department for Business, Energy & Industrial Strategy (2)*

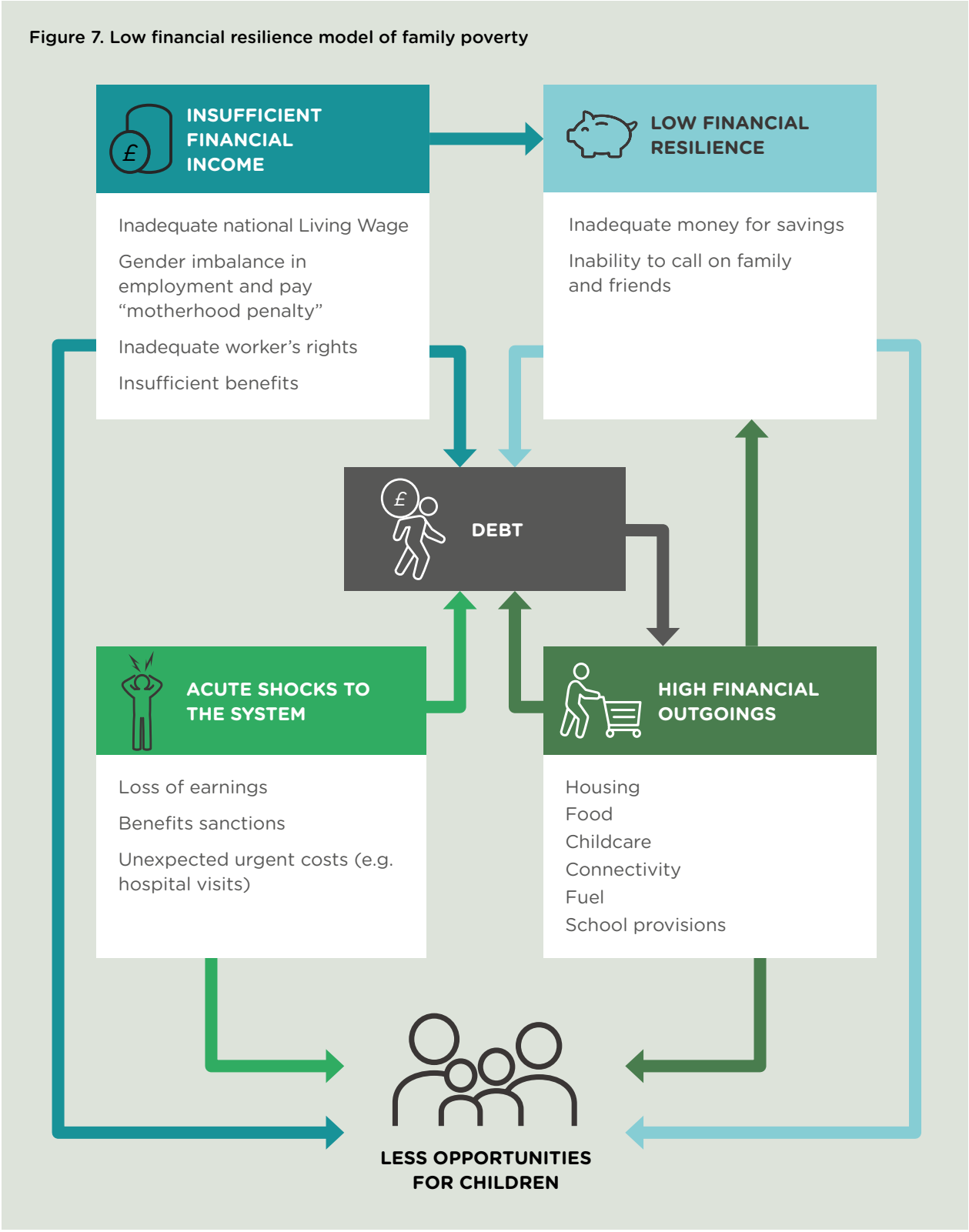
INCOME INEQUALITIES

Wealth reflects the availability of resources and assets, therefore households with greater wealth tend to have greater financial resilience (38). In times of financial difficulty, the inability to draw on savings or assets renders a family vulnerable to debt. Wealth distribution in the UK is unequal. Average household wealth in Great Britain is £302,500, yet those in the poorest decile had median wealth of £8,189 in 2018–2020, and half of this population had more financial debt than assets. In comparison, the average wealth of the most affluent decile is over £2 million (38). During the pandemic, the households most likely to lose earnings, those with working parents and young adults, and those on low incomes, have had the least savings to draw on and are increasingly unlikely to be able to keep their homes warm (38) (39).

FAMILIES WITH DEPENDENT CHILDREN

While the elderly are one of the groups most at risk of experiencing adverse health effects from cold homes, households with dependent children, and multigenerational occupancy, are particularly at risk of fuel poverty. Lone parent households, who are at higher-than-average risk of being in relative poverty, are also at the highest risk of experiencing fuel poverty. 26.5 per cent of all lone-parent households were fuel-poor in 2020 (2). Figure 7 depicts the factors that result in families with dependent children being more likely to have low financial resilience and to be more susceptible to poverty.

Figure 7. Low financial resilience model of family poverty



Source: Lee et al., 2022 (40)

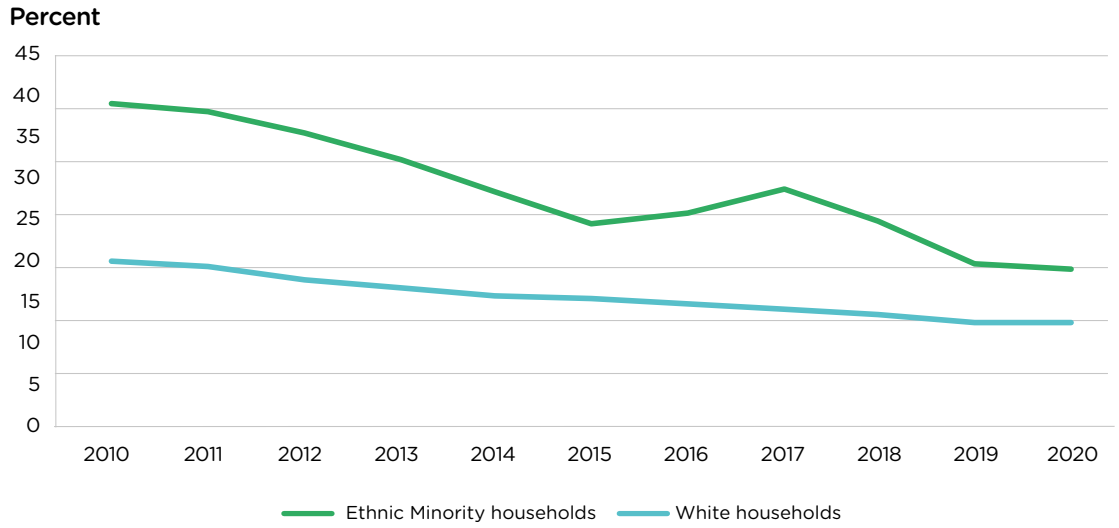
HOUSEHOLDS WITH PEOPLE LIVING WITH DISABILITIES

Living with a disability increases the risk of experiencing fuel poverty. It leads to a reduced income: 27 per cent of households that include someone who is disabled are on a low income when measured before housing costs, compared with 15 per cent of households with no disability; and their cost of living is higher. Disabled people face higher energy bills due to having additional needs (such as medical equipment that requires a power source) and spending longer periods at home (41) (42) (2).

MINORITY ETHNIC HOUSEHOLDS

Minority ethnic households are more likely to be in fuel poverty than White households (Figure 8). This is partly explained by the income inequality experienced by Minority ethnic households. Official rates of fuel poverty show a decrease in the fuel poverty gap between White and non-White households since 2017, but fuel poverty rates are still higher for Minority ethnic households (43) (44).

Figure 8. Percentage of households in fuel poverty, White and Minority ethnic groups, England, 2010–2020



Source: *Department for Business, Energy & Industrial Strategy (44)*

chapter

4 THE HEALTH IMPACTS OF LIVING IN FUEL POVERTY

Health impacts from fuel poverty are driven by households having to live in cold homes. Households in fuel poverty are less able to adequately ventilate their homes, which causes poor indoor air quality from particulate matter, damp and mould (45). As well as the risk of damp in cold homes, poorly fitted or single measure retrofitting can also exacerbate damp due to loss of ventilation (46).

Cold homes are linked to an increased risk of developing a wide range of health conditions, especially respiratory and cardiovascular, as well as poor mental health and unintentional injury. Cold homes do not necessarily reflect extreme outdoor temperatures, and the National Institute of Clinical Excellence (NICE) reports that most negative health impacts from cold homes are felt when outdoor temperatures are around 6°C (47).

In 2019 the Local Government Association estimated the NHS spends £2.5 billion per year as a minimum on treating illnesses that are directly linked to cold, damp and unsafe homes (48).

Babies, children, older people and those with pre-existing health problems are at greatest risk of health problems as a result of living in cold homes, and therefore are particularly at risk to the health consequences of fuel poverty (49).

4A CHILDREN AND YOUNG PEOPLE

Households with children have the highest prevalence of fuel poverty. One in five UK households with dependent children experienced fuel poverty in 2020 (40.3 per cent of all fuel-poor households) (2).

EARLY YEARS

Research consistently shows that the early years (from birth to six years of age) are crucial for growth, the development of organs and body systems, and social, emotional and cognitive function, and have a significant bearing on a person's opportunities and life expectancy. Babies living in colder temperatures require more calories for growth. Infants living in low-income and food-insecure families who receive a winter fuel subsidy have statistically better carer-reported development, higher weight-for-age scores and are less likely to attend emergency paediatric services compared with those not receiving subsidies (a similar, but not statistically significant pattern is seen in food-secure households) (50).

RESPIRATORY HEALTH

Cold temperatures are associated with reduced resistance to respiratory infections and increased circulation of viruses that can cause upper and lower respiratory tract infections, including bronchiolitis, in children (51).

Cold homes are more prone to damp and mould, both of which contribute to developing asthma and acute asthma attacks (52). Damp and mould may contribute to approximately 10–15 per cent of new cases of childhood asthma across Europe (53). Asthma and its effects are further worsened by a proliferation of house dust mites as people keep windows closed, to contain heat and thus reduce ventilation (45) (54).

An English longitudinal study from 2001–2005 showed that rates of respiratory illness were over twice as high in children who had lived in cold, damp homes in the previous three years compared with those who had not (50). A systematic review by the World Health Organization found that lung function worsened with every 1°C drop below 9°C of indoor temperature for children with asthma (49).

MENTAL HEALTH

Living in cold homes is associated with multiple mental health risks for young people, and 28 per cent of young people living in cold homes were found to have four or more negative mental health symptoms, compared with 4 per cent of young people who had always lived in warm homes (55). A significant proportion of children living in cold homes felt unhappy in their family – 10 per cent, as opposed to 2 per cent of the group living in warm homes (50).

Living in fuel poverty may not only impact the mental health of children – a longitudinal study in Ireland found that mothers of young children may be up to 64 per cent more likely to experience maternal depression if living in fuel-poor households, even after taking account of income, education and employment (56). Maternal mental health issues in early years can be a key contributor to 'adverse childhood experiences', which impact the health of a child across their life course (57).

EDUCATION

As well as immediate and long-term health implications, fuel poverty and cold homes can significantly impact a child's education. Energy-inefficient, cold homes are more prone to damp and mould and it is estimated that 1.7 million school days are missed across Europe due to illnesses associated with damp and mould (53). UK children miss more school days due to disease burden from damp than any EU member state, with rates over 80 per cent higher than the EU average (53). As well as missing days in school, it is much more difficult for children to do homework and study in a cold home where households crowd into one or two heated rooms (55).

4B ADULTS, INCLUDING OLDER ADULTS

RESPIRATORY PROBLEMS

A 2014 Institute of Health Equity report showed clear evidence between cold temperatures and respiratory problems in adults (55). Resistance to respiratory infections is lowered by cool temperatures and can increase the risk of respiratory illness. Cold temperatures have been found to impair the functioning of the lungs and may trigger broncho-constriction in asthma and chronic obstructive pulmonary disease (COPD). Moreover, studies have found that visits to GPs for respiratory tract infections increased by up to 19 per cent for every 1°C drop in mean outdoor temperature below 5°C (58). A case-control study also found that people with asthma were two to three times more likely to live in cold and damp household conditions than those without asthma (55). A cross-sectional study found people with COPD experienced better health when they lived in an indoor temperature of 21°C and this effect was most prominent in smokers (59).

Increased viral circulation during colder months contributes to morbidity in winter, and respiratory viral epidemics including influenza and COVID-19 are associated with increased excess winter deaths. Households at risk of fuel poverty are also at risk of circulating respiratory viruses due to cold homes and an association with overcrowding (60).

CIRCULATORY PROBLEMS

The 2014 Institute of Health Equity report also stated that circulatory problems are also affected by cold (55). Research suggests that deaths from cardiovascular disease in England were 22.9 per cent higher in winter months than the average for other times of the year. Studies have found that cold affects circulatory health where indoor temperatures fall below 12°C, which results in raised blood pressure, caused by the narrowing of the blood vessels, which can lead to increases in blood thickness as fluid is lost from circulation. Increased blood pressure, and increased blood viscosity, can increase the risk of strokes and heart attacks. More recently, the English Longitudinal Study of Ageing found that living in homes where the temperature is under 18°C was associated with higher blood pressure and higher cholesterol (61). In addition, research analysing coronary events in people aged 35–64 across 21 countries found coronary events were more likely to be fatal during colder periods than in warmer periods (55).

LONG-TERM CONDITIONS AND DEMENTIA

Studies indicate that cold conditions can exacerbate existing medical conditions including diabetes, certain types of ulcers and musculoskeletal and rheumatological conditions (55). Decreasing body temperature is associated with a build-up of markers for dementia and Alzheimer's in the brain. A study of over 3 million patients in the United States found fewer dementia-related hospital admissions when temperatures were warmer than average, and that variability in temperatures increased admissions (62). People living in fuel poverty with a diagnosis of dementia may be even more at risk from cold homes due to difficulties in communication and difficulties in being able to self-manage their indoor temperature (such as managing a heating system or being able to dress for the cold), and may become more confused (63).

OLDER PEOPLE

As people reach old age, body temperature lowers and physiological thermoregulation becomes less effective (62). The 2014 Institute of Health Equity report featured research that suggested cold temperatures can cause blood pressure to rise in older people, increasing the risk of strokes and other circulatory problems (55). A study of residents aged over 65 across the London Borough of Newham observed hospital admissions for respiratory diagnosis, ranking these against the Fuel Poverty Index (FPI). The FPI included factors of housing energy efficiency, low income, householder age and under-occupation (living in properties larger than household needs). The study found the FPI to be a predictor of hospital admittance, indicating that a relationship exists between the energy efficiency of the home and winter respiratory symptoms among older people. Moreover, cold homes have been associated with lower strength and dexterity and exacerbated symptoms of arthritis, which can increase the risk of falls and unintentional injury (55).

4C EXCESS WINTER DEATHS

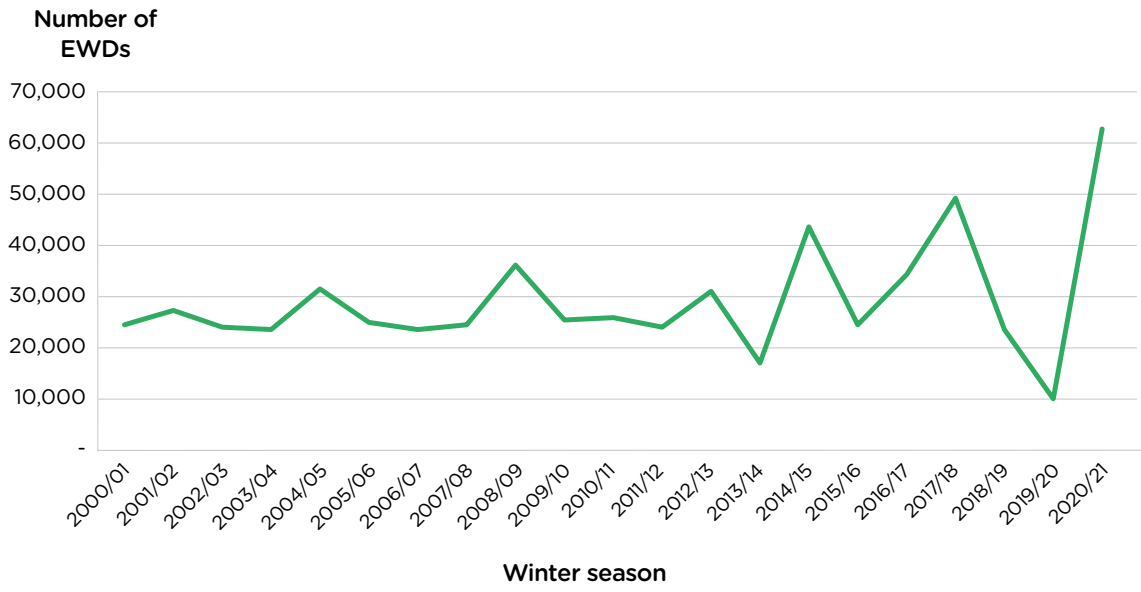
Cold homes and fuel poverty contribute to the phenomenon of excess winter deaths. 10 per cent of excess winter deaths are directly attributable to *fuel poverty* in England (55). It is estimated that 21.5 per cent of excess winter deaths are attributable to *cold homes* (55).

Mortality in many countries increases during the winter months due to the impact of cold weather on chronic conditions as discussed above, and an increase in circulating winter viruses. The leading causes of excess winter deaths in England are respiratory and cardiovascular diseases, dementia and injuries, all of which are exacerbated by living in a cold home (64). The elderly are particularly vulnerable to excess winter deaths, likely due to the increased incidence of pre-existing health conditions and disabilities in this group, as well as the physiological impact of cold discussed above (55).

A study of Excess Winter Death Indices (EWDI) across 31 European countries from 2002–2011 found that generally, EWDI are higher in southern European countries where the climate is more temperate. There are many suggested contributing factors to this 'paradox', including differences in the energy efficiency of housing, rates of influenza vaccine uptake, healthcare spending, rates of GDP and level of deprivation. Despite this pattern of warmer countries having higher rates of winter deaths, England's EWDI was in the highest quintile of included countries for excess winter deaths and was 4.5 per cent higher than the average for other Northern European countries (60).

The Office for National Statistics' standard method for measuring excess winter deaths in England and Wales compares the average number of deaths that occur during the winter period (December to March), with the average number of deaths that occur in the preceding four months (August to November) and the following four months (April to July). In winter 2020–2021 (the most recent available data), there were 63,000 excess winter deaths, with the primary cause being COVID-19 (Figure 9).

Figure 9. Excess winter deaths in England and Wales, 2000–2021



Source: *Office for National Statistics (64)*

4D CLUSTERING OF FUEL POVERTY WITH OTHER SOCIOECONOMIC DETERMINANTS OF HEALTH

Fuel poverty does not occur as an isolated manifestation of socioeconomic deprivation and those living in fuel poverty will by definition also experience other types of deprivation. Addressing fuel poverty will therefore also improve several other outcomes important for health.

Living in poverty is difficult and stressful, and fuel-poor households will face financial, time and resource restraints, which worsens mental health and impacts the ability to live healthily (40). Fuel poverty therefore exacerbates health inequalities by impacting physical and mental health for adults and children alike:

- High fuel costs reduce available resources for transport, socialising and meeting with family, house repairs and access to essential services – all important social determinants of health.
- In particular, households facing fuel poverty can be priced out of having sufficient and healthy foods, and there may be further limitations in the resources available to prepare and cook nutritious meals (65).
- Fuel poverty increases the number of days of missed education or work (66).
- Households with insufficient funds may have to choose between heating and online access at home. Given that many public services including advice services for fuel bills and remote access health care appointments rely on access to technology and good quality internet, fuel-poor households who are digitally excluded will struggle to access help (67).
- Deprivation affects how a person's body grows and develops. Epigenetics is an expanding field of science examining environmental factors that affect DNA function. Up to 10 per cent of a person's DNA can be affected by the conditions in which they lived as a child. Epigenetic changes can occur when children are exposed to consequences of cold, damp housing such as mould and disrupted sleep (68).

Fuel poverty is also linked to health inequalities due to other aspects of inadequate housing:

- Overcrowding is associated with low-income households and rates of overcrowding in privately and socially rented housing have steadily increased over 20 years (36); rates of fuel poverty are twice the national average in households with five or more people (69).
- The housing charity Crisis estimated in February 2022 that homelessness in England could increase by a third to 66,000 people, as a result of the increasing cost of living and the end of COVID-19 eviction bans (70).
- Households that are in fuel poverty are also more likely to experience overcrowding in living spaces as they are limited to heating fewer rooms. Overcrowded households are more likely to be fuel-poor, which then forces the household into limited warm rooms, exacerbating the health risks of overcrowding. Overcrowding increases risk of injury, respiratory disease and spread of infections and has a negative effect on mental health and interpersonal relationships (45).
- Those at higher risk of financial deprivation and fuel poverty are more likely to have limited or no access to outdoor space – 20 per cent of people in manual/casual work or unemployment have no access to a garden in comparison to 7 per cent of people in managerial or professional occupations. There is also a significant ethnic inequality in access to garden space, with Black people almost four times more likely to have no access to outdoor space at home (37 per cent) compared with White people (10 per cent) (71).

chapter

5 REDUCING HEALTH INEQUALITIES RELATED TO FUEL POVERTY AND COLD HOMES

Fuel poverty cannot be reduced by one single action: it requires a range of short- and long-term interventions to increase incomes, reduce fuel prices and improve housing insulation and energy efficiency and usage.

By 2020, many national programmes introduced to address fuel poverty were either stalling or their funding had been reduced:

- The Energy Savings Trust was government-funded from 1992 to 2018 to coordinate energy efficiency advice nationwide and ensure a 'minimum standard of quality energy efficiency advice'. In 2018 the programme was defunded and replaced with a digital government website, with variability in local authority energy efficiency advice and limited access for those who most needed the advice, due to inequalities in digital use (72).

- A government pledge to offer smart meters, devices that can empower households to better manage their energy bills, to every household by 2020 was delayed in 2019 and has been delayed further until 2025 (73) (74).

- The Government's Energy Company Obligation (ECO) scheme was introduced in 2013, with a primary aim to reduce carbon and fuel poverty by promoting 'Home Heating Cost Reduction' interventions, targeted at households most at risk of fuel poverty (75). The rate of implementing energy saving interventions has slowed over recent years and the scheme has received progressively less funding since 2010 (1) (72) (76). The third phase of ECO ended in March 2022 and the fourth phase was delayed until July 2022.

- Rates of installations to improve household energy efficiency to band C or above peaked in 2012 at 2.3 million households per year and have dropped by approximately 90 per cent since then (77).

In 2022 the Government announced a £150 council tax rebate for properties in council tax bands A–D, and a £400 energy bill discount for all domestic energy customers, with an additional 'cost of living' payment for those on means-tested benefits (78). Households that pay their bills through direct debit or smart pre-payment meters will automatically receive the energy bill discount, whereas households on older prepayment meters will receive a voucher at the beginning of each month over winter, which they will need to redeem (79). These funds, however, will not cover the expected increases to gas and energy bills. In particular, households that are at most at risk of fuel poverty in the coming winter may benefit the least from this scheme:

- Households living in privately rented properties are at higher risk of living in energy-inefficient homes, with higher levels of damp. If landlords pay the council tax on their property, the initial £150 tax rebate will go to landlords, rather than the tenants who are facing increasing energy bills (8).

- Households using pre-payment meters are more likely to both be fuel-poor and have higher energy tariffs than those who pay by direct debit. These households will face an additional layer of complexity when accessing the energy bill discount scheme in comparison to households who pay through direct debit (80).

As well as short-term actions to boost incomes temporarily, national government needs long-term management plans to address fuel poverty, adopting a proportionate universalist approach, offering universal support with additional support for those most in need. Recommendations made by the Resolution Foundation, targeting both household income and energy need by introducing a social tariff (qualifying households offered a discounted rate on energy bills), or lowering energy prices for everyone and recouping some of the cost through a 1 per cent income tax and ramping up windfall taxes on energy companies would offer support for those who are most in need (81). The lower price cap, which kept thousands of households out of fuel poverty, should be reinstated as a matter of urgency. Energy UK's Vulnerability Commitment, which recommends that energy companies cannot

disconnect households who can't pay their energy bill for financial, age (including pensioners or families with children under the age of 6), health and disability reasons, should be made mandatory and be extended to cover all households with children under the age of 16 (82).

Without a national strategy to prioritise fuel poverty, the capacity of local government to plan and support their local populations is undermined. In the absence of central, long-term strategic planning, local stakeholders can work to mitigate against the impact of rising energy bills and low incomes following the COVID-19 pandemic, but these services will be piecemeal. Furthermore, local government is suffering from a severe lack of resources, which will impact its ability to support households in fuel poverty. Local government and services will need to identify and support the people who are most at risk to the effects of cold weather this winter and target those most at risk.

Groups at particular risk include:

- Those in geographical areas of high deprivation
- Pregnant women and young children
- Those living with chronic illness or disability
- Older people
- Traveller populations
- Refugees and asylum seekers.

Approaches to addressing the health impacts of fuel poverty must tackle the underlying causes of fuel poverty as well as mitigating the health consequences. To achieve this, interventions must include health, social and housing stakeholders with ringfenced funding to ensure long-term sustainable impact.

In the rest of this section we outline an approach to address fuel poverty at the local level, using examples of existing interventions.

5A REDUCING DEPRIVATION AND INCOME INEQUALITY

SHORT-TERM

Many UK households do not access all the benefits they are entitled to, and estimates suggest that billions of pounds-worth of benefits go unclaimed each year (83). The Department for Work and Pensions reports that only 77 per cent of available pension credit was claimed in 2019–2020, for example (84).

Advice services such as Citizens Advice can help with income maximisation for many households most at risk of fuel poverty. Local advice services must be tailored to personal needs, including making home visits and face-to-face appointments to ensure digitally excluded households are able to access support, and making information available in multiple languages.

Examples of targeted advice services for income maximisation:

- **Welsh Child Poverty Income Maximisation Action Plan (IMAP)**

  The Welsh Government invested £800,000 in an advice service pilot project in 2020–21, training people who come into contact with families at risk of poverty in benefits awareness. The IMAP included projects specifically designed for families from Minority ethnic backgrounds, families with low income, and families with children living with disabilities. The pilot reached 1,440 households, and in total helped them claim over £2.468 million in additional benefits (85) (86).

- **East Ayrshire Joint Team Fuel Poverty Strategy**

  Ringfenced funding from December 2006 to March 2009 enabled East Ayrshire council to train team members to visit people living in poverty over the age of 60 in their homes to provide income maximisation advice and assist with completing application forms. In one year, the programme helped make 673 successful claims, amounting to £1.358 million of extra income for pensioners (87).

LONG-TERM

Income recovery after COVID-19, through both improved wages and benefits, is one of the most important mechanisms for overcoming fuel poverty (and other forms of poverty). This must be a focus for national government, including addressing deficits in universal credit and income in the upcoming cost-of-living crisis. Local authorities and community stakeholders should also prioritise economic recovery in areas of deprivation and areas most affected by the pandemic, as regeneration in these areas can indirectly improve levels of fuel poverty.

Examples of longer-term economic recovery:

- **Neighbourhood renewal in Northern Ireland**

  A longitudinal study in Northern Ireland that focused on levels of fuel poverty in 'neighbourhood renewal' areas found that urban regeneration programmes reduced levels of fuel poverty, particularly in groups at high risk of fuel poverty, including adults with low levels of education, those receiving benefits and retired adults. Regeneration took place over a seven to 10-year roll-out, highlighting the need for long-term planning (88).

5B IMPROVING HOUSING QUALITY AND ENERGY EFFICIENCY

EXISTING PROPERTIES

Energy efficiency and insulation interventions can also improve health outcomes associated with cold homes (66). Retrofitting houses to improve energy efficiency and renewing heating systems reduces the risk of fuel poverty by improving energy costs and thermal comfort as well as reducing greenhouse gas emissions. Local authorities should identify at-risk households and dedicate resources to improving energy efficiency.

Examples of improving housing quality:

- **Area-based intervention for fuel poverty in Wales: Arbed II**

  The Arbed II programme aimed to reduce fuel poverty and carbon emissions by installing external wall insulation, new heating systems and boilers, heating controls and connection to mains gas in low-income areas from 2012–15. The interventions had a positive impact on reported financial difficulties, housing problems and social isolation. Home monitoring found an increase of 0.5–1.5°C in indoor temperature after the intervention. Qualitative analysis found that residents also reported better wellbeing, with improved mental health and reduced physical health concerns after the programme (89) (90).

- **Boilers on prescription, Sunderland Clinical Commissioning Group and Gentoo Housing Association**

  Boilers on prescription schemes, where the NHS directly funds housing improvements, are programmes previously funded by either the NHS or Energy and Climate Change budgets (91). Sunderland Clinical Commissioning Group identified COPD patients living in housing association accommodation and assessed their heating systems. Six households were identified for a renewal of heating systems, and six were identified to be 'control' households, not receiving a new boiler, for comparison. While the ability to generalise from this small trial is limited, the study found a reduction in the need for GP appointments and emergency hospital attendances, reduced energy bills and an increase in indoor temperature post-intervention, compared with the control group (92) (93).

  Privately rented properties have the highest rates of energy inefficiency. One reason is a lack of incentive to make improvements for private landlords, as they do not directly reap the health or financial gains from doing so. With rising numbers of privately rented homes, councils across England have sought multilevel methods of addressing this inequality. For example:

- **Thurrock Council Private Housing Service**

  As part of its Private Housing Service, Thurrock Council partnered with public health and other public services to develop the Well Homes Project, which includes property surveys for Housing Health and Safety Rating System (HHSRS) hazards. Since 2014 the project has identified and removed 1,000 'Category 1 hazards', most of them being excess cold. Alongside the Well Homes Project, the Council offer Landlord Accreditation whereby landlords who sign up receive training on HHSRS and Minimum Energy Efficiency Standard Regulations (MEES), and receive financial support for addressing Category 1 Hazards. Civil Penalty Notices are served to landlords who fail MEES regulations and have an EPC rating below E (94).

NEW PROPERTIES

While local authorities must work with landlords to retrofit existing homes, action must also be taken at a central and local level to ensure new properties are energy-efficient. In May 2022 the Healthy Homes Bill was introduced to the House of Lords, to "make provision for the delivery of healthy homes and neighbourhoods; to set out the principles that define a 'healthy home'; to establish the office of the Healthy Homes Commissioner; and for connected purposes". The Bill defines a healthy home as one that provides thermal comfort all year round, reduces carbon emissions and is built to minimise indoor air pollution (95). This comes alongside the Future Homes Standard, which aims to raise standards of energy efficiency and ventilation in new-build homes from 2025. However, consultation on the standard is due to continue until 2023, and the tight timeframe between presentation in Parliament and implementation may cause delays (96).

5C ADDRESSING ENERGY COSTS

SHORT-TERM

Local authorities should ensure that local energy advice services take the place of the defunded Energy Savings Trust. Councils and the voluntary sector can support residents in reducing energy costs by reviewing energy tariffs and working with energy suppliers to ensure households are not disconnected when facing fuel poverty. Smart meters can also be an important tool in reducing a household's energy costs – by providing accurate, regular energy use readings to the occupiers and the energy company, smart meters bypass the need for estimated bills, empower families to be more efficient in their energy use and can allow cheaper tariffs if energy is used during cheaper times (97).

Suppliers can make efforts to provide better services to all of their customers. As a minimum it should be mandatory for all energy suppliers to sign up to the Energy UK Vulnerability Commitment and the Commitment should be extended to cover households with children aged 16 and under. The Commitment is a voluntary agreement to improve the support suppliers provide to households at risk of fuel poverty. Currently 11 suppliers covering 80 per cent of the UK market have signed the Commitment (82).

Examples of supporting people to pay energy costs:

- **Switch Together, Save Together, Merseyside**

  Switch Together, Save Together is a collective switching scheme implemented in Merseyside. Organised by a local charity called Energy Projects Plus, it receives backing from the councils of Halton, Knowsley, Liverpool City, Sefton, St Helens and Wirral. It aims to reduce residents' energy bills through collective buying power to negotiate cheaper energy tariffs from suppliers. Since initiation, 17,847 households have registered with the scheme and saved £1.56 million on energy bills (98).

5D ADDRESSING HEALTH NEEDS AND NHS INTERVENTIONS

Health care services need to recognise the importance of early years health and invest accordingly when planning resource allocation. The illnesses that make adults vulnerable to the effects of fuel poverty and cold homes, including COPD and cardiovascular disease, have their origins in the antenatal period and early years of life. To successfully create interventions to protect from the health effects of fuel poverty, health services and local authorities therefore have an obligation to optimise the health and wellbeing of children and young people. The effects of fuel poverty will be felt in other public services. Children and young people growing up in cold homes and in fuel poverty are more likely to miss out on education, which will impact their educational outcomes and eventually on their future income potential.

SHORT-TERM

Implement NICE guidelines

Local health providers should implement the NICE guidelines on health risks of cold homes with immediate effect.

NICE guidelines – key themes for health and wellbeing boards:

1. Include health effects of cold homes in joint strategic needs assessments and ensure a year-round strategy which incorporates local providers.

2. Recognise those most at risk from cold homes (both those most at risk of fuel poverty and those most at risk of ill health from cold homes).

3. Ensure all health and social care providers, as well as non-health and social workers who may visit households, including those working in home maintenance, voluntary and faith-based organisations and fire protection, are trained in the health risks of a cold home, and how to identify at-risk people.

4. Create a 'single-point-of-contact health and housing referral service' to which anyone coming into contact with groups at high risk of fuel poverty can refer into. The referral service should:

   a) provide tailored, personal advice

   b) be available as a face-to-face service as well as free over the phone

   c) link with health and social care providers, local housing providers, advice agencies, health and social care charities, voluntary organisations and home improvement agencies

   d) provide short-term emergency support as well as long-term solutions (47).

Integrated Care Systems taking proactive actions on housing

Integrated Care Systems should accept their role in improving housing, which will in turn improve health and wellbeing in all age groups and reduce inequalities. One of the most significant ways in which health inequalities can be reduced is through good quality housing, yet many ICSs have yet to make the connection between poor health and poor housing. Given the significance of housing to health, as outlined in this report and in many others, the NHS must be more involved in improving housing in the region. The effectiveness of treatments in primary and secondary care, such as treating and screening for asthma and COPD, is diminished as patients return to cold and damp homes. ICSs should work together in local partnership to improve housing associated with or exacerbating illness and better support clinicians to better identify and connect patients to housing improvement services. Housing has traditionally been the responsibility of local government but as the effects of poor housing continue to have multiple consequences for the NHS, providing core funding to address housing problems should be the business of the NHS.

Healthcare workers

Healthcare workers should be trained in identifying patients who are likely to be in fuel poverty and trained in the referral process. Initially, this should be targeted, but for sustainability all healthcare workers should be trained in recognising and addressing social determinants of health inequalities, including fuel poverty (see long-term goals).

Comprehensive influenza and COVID-19 vaccine campaigns that focus on the most at-risk patients will also be vital in tackling the health inequalities associated with fuel poverty and cold homes (60).

Social welfare legal advice in the NHS

Providing welfare rights advice in healthcare settings is effective in targeting assistance towards older people and those in poor physical and mental health (99). Advice services delivered in health settings have been shown to reduce financial strain and financial vulnerability among recipients (100), (101) (102). Research into client experiences has demonstrated that the additional income is commonly used for essentials, such as settling energy bills, heating the home adequately and affording better quality food (103) (104) (105). This has significant benefits for quality of life and has been shown to improve mental health (105) (106).

An example of an acute trust providing social welfare legal advice is the partnership between Alder Hey Children's Hospital and Liverpool Children's Centres:

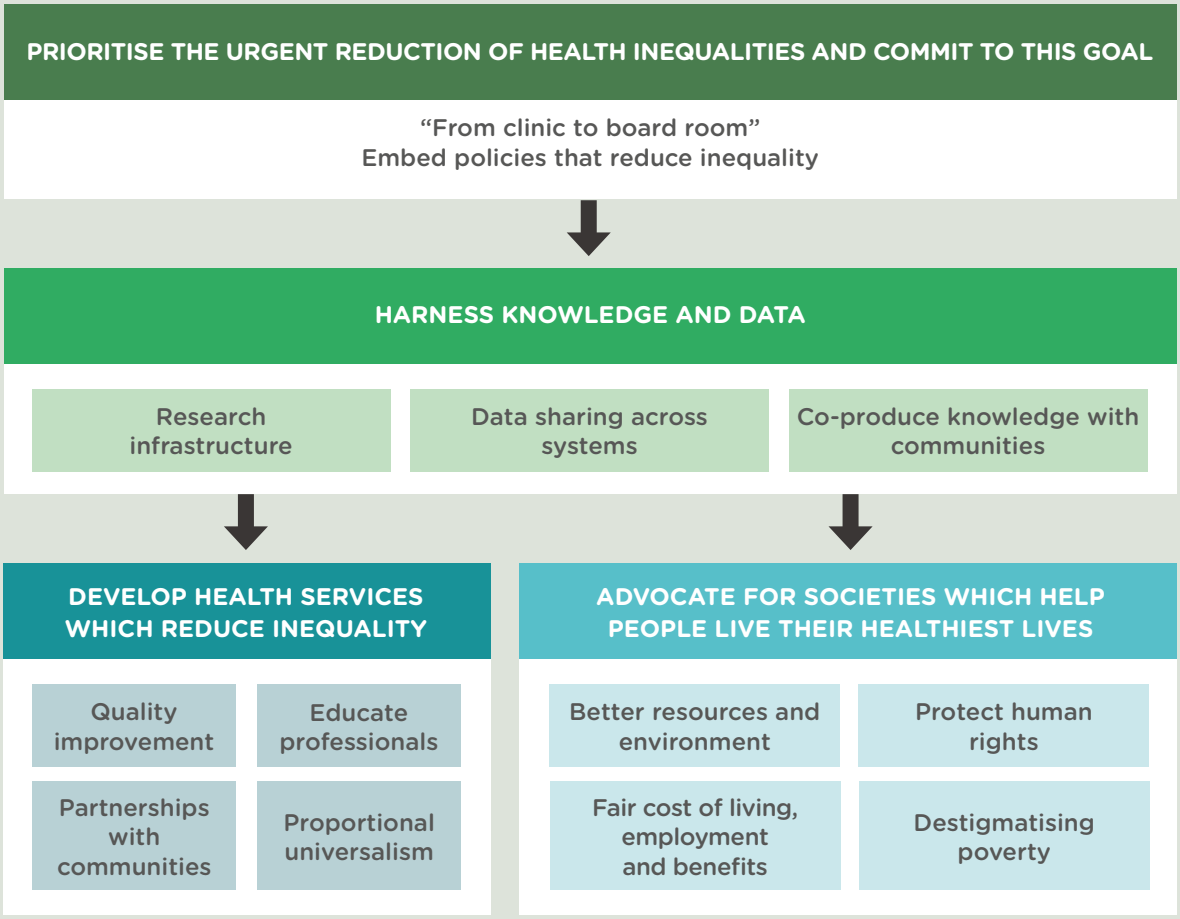
- **Bronchiolitis parent champions.** From December 2020, Alder Hey Children's Hospital employed 10 community bronchiolitis Parent Champions who worked in Children's Centres within their own communities in Liverpool. All were mothers who had utilised Children's Centres in Liverpool's wards that have high levels of deprivation and paediatric respiratory illness. The mothers received training from paediatricians, midwives, Citizens Advice, Shelter and breastfeeding charities. As well as providing practical support and advice on bronchiolitis, the Parent Champions provided Healthy Start vouchers for eligible families to help towards the cost of healthy food and could directly refer families to Citizens Advice social prescribing schemes. In six months the Parent Champions reached approximately 2,000 families in deprived areas of Liverpool, with strong positive feedback from the community.

Health justice partnerships are collaborations between health services and organisations specialising in welfare rights (107). They integrate legal advice with patient care, supporting people with issues such as welfare benefits and debt (108). The advice services can be integrated with health services through mechanisms such as co-location, referral systems and multi-disciplinary team working (109).

LONG-TERM

In the long term, addressing the drivers of health inequalities including fuel poverty needs to be built into the foundations of the NHS, 'from clinic to boardroom'. Figure 10 demonstrates how healthcare providers can incorporate health inequalities into each aspect of delivery.

Figure 10. A framework for healthcare institutions to address health inequalities



Source: *Lee et al., 2022 (40)*

chapter

6 CONCLUSIONS

Fuel poverty is a long-standing problem in the UK, and the number of households facing this form of inequality has increased substantially in 2021–22. With energy prices set to rise further in October 2022 and January 2023, it is estimated 55 per cent of the UK's households will be in fuel poverty at the coldest time of year – this will harm health and wellbeing in the short- and long-term and widen health inequalities (8).

Fuel poverty has significant impacts on physical and mental health throughout life, as well as negatively impacting important social determinants of health including income, education and employment. Fuel poverty is driven partly by low income. Therefore, it is poorer households who bear the brunt of the health impacts of fuel poverty and poorer households who should receive proportionately more support.

Stakeholders, including local authorities, health care services, housing groups and advice services need to act now and plan to act in the future to address fuel poverty in their communities. A cross-department approach to fuel poverty is required, recognising the threat to health. A national strategy that addresses the drivers of fuel poverty is urgently needed too, one that reduces the number of households in poverty, increases the number of energy-inefficient homes, reduces greenhouse gas emissions, slows down the rising cost of energy and increases ringfenced resources allocated for tackling fuel poverty.

A driving force of fuel poverty is reliance on imported fossil fuels. Recent extreme weather events coupled with increasing gas prices highlight the importance of making the links between health inequalities and climate change and understanding the impact of green energy on fuel poverty. There are direct and indirect impacts of climate change to mental and physical health and unequal impacts that deepen health inequalities. Looking to the future, as the climate warms and the incidence of extreme weather events increases, harm to health from climate change will increase too, affecting people who live in the most deprived areas the most (110). Reducing the reliance on imported fossil fuels will not only reduce fuel poverty but will also mitigate climate change and therefore contribute to reducing climate change impacts on health for the most deprived people.

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