UNDER ONE ROOF

HEALTH & HOUSING SECTORS TACKLING FUEL POVERTY AND COLD-RELATED ILL HEALTH TOGETHER

NEA
Action for Warm Homes

Liverpool City Council

Department for Business, Energy & Industrial Strategy

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Action for Warm Homes

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EXECUTIVE SUMMARY

Whilst there are issues with the fragmented nature of the evidence base around cold homes and health to date, **current available evidence is and has been enough to engender official recognition of the problem** by health-related bodies such as the National Institute for Health and Care Excellence (NICE), Public Health England (PHE), and wider health-based institutions such as the Royal College of General Practitioners (RCGP), Royal College of Nursing (RCN), Royal College of Midwives and Faculty of Public Health (FPH).

Cold homes have been comprehensively shown to impact upon **excess winter morbidity and mortality; cardiovascular and respiratory disease; mental health; and other health conditions**. These health conditions can affect and have different detrimental impacts on all age groups and, as such, are **cross-generational**.

However, national policy recognition and support has not been reflected in the development of consistent cross-organisational work programmes at a scale sufficient to deliver the necessary improvements.

Under One Roof was commissioned by Liverpool City Council and funded by the Department for Business, Energy and Industrial Strategy (BEIS). It examines evidence and practices where health bodies[(i)] have worked in partnership with fuel poverty alleviation schemes. It particularly aims to identify the type of evidence commissioners are requiring from scheme providers.

It is aimed at two key audiences. Firstly, it is aimed at local programmes delivery organisations, for which the report demonstrates examples of best practice joint working. Secondly, it is aimed at national policy and programme funding organisations, for which the report highlights the current barriers to large-scale delivery of national policy aspirations.

Contained within the report is a review of the different approaches taken by local authorities, local public health teams, national public health teams; Clinical Commissioning Groups (CCG) and the National Health Service (NHS) and NICE to address the issue of cold-related ill health.

The report proposes national and local recommendations to enable a joint approach to investment and broader replication of the current best practice across the UK.

This report complements a BEIS-funded toolkit that has been produced by Cornwall Council and Citizens Advice to help health services understand the drivers for taking action on cold homes and how they can support people to live well at home. This represents a practical manifestation - a 'how to' guide - of the recommendations and good practice examples highlighted within this report. The toolkit can be accessed by visiting the following link: **www.citizensadvice.org.uk/cold-homes-toolkit/**

Why we need to act

- For each 1°C drop in outdoor temperature below 19°C, there is a 2.8% increase in mortality for those who live in the coldest 10% of homes while there is a 0.9% increase for those in the warmest 10%.
- Those living in the coldest 25% of homes are 20% more likely to die in the winter than those living in the warmest 25%.
- Pre-existing conditions may be exacerbated by cold indoor temperatures, increasing vulnerable people's risk of death or illness.
- It has been estimated that the overall cost to the NHS of poor housing containing category 1 hazards is £1.4bn.
- Research has suggested that if all of the English housing stock with a SAP below the historic average of 41 was to be brought up to at least the current average of 51 through heating and insulation improvements, the health cost-benefit to the NHS would be some £750 million per annum.

(i) The Health and Social Care Act 2012 saw responsibility for commissioning public health activities move from the NHS to local Authorities, and the establishment of Public Health England as a new executive agency of the Department of Health and Social Care. We therefore differentiate between the health sector and health related bodies (such as public health) within this report to reflect this division.

WHAT YOU WILL FIND IN THE FULL REPORT

CURRENT EVIDENCE AND PRACTICE

- The current evidence of the health impacts of living in a cold home
- The health outcomes that have been achieved by deploying energy efficiency and utilising energy sector funding
- How the evidence base is currently being applied in the UK to establish relevant strategic frameworks by various official bodies to strengthen the links between health and housing
- The current policy landscape for action on cold homes

RESEARCH FINDINGS

- Which health-based fuel poverty schemes have been able to secure engagement (financial or otherwise) from the health sector or public health to date
- Extent to which health sector bodies or public health have been involved in decisions to commission and fund health-related fuel poverty schemes
- Types of evidence required by health sector bodies and public health teams to lend their support to initiatives
- How evidence has been collected and presented in different areas

REFLECTIONS ON CURRENT & FUTURE ACTION AND RECOMMENDATIONS

- Why particular kinds of evidence may be valued by some health sector bodies and public health teams but are not yet acted upon more universally
- Which local and national mechanisms may need to be adjusted or put in place before actions to commission, fund or support cold-related health and housing services can be made the norm
- Recommendations for scheme providers
- Recommendations for national policy-makers and commissioners

KEY FINDINGS

Level and nature of involvement from health-related bodies in schemes to address cold-related ill health.

Scheme providers surveyed were asked to indicate the level and nature of involvement from health-related bodies or healthcare professionals in the implementation and/or funding of their schemes. Results suggest that local Public Health teams are playing the greatest role when it comes to local health-related bodies commissioning and funding initiatives to tackle cold-related ill health.

A greater number of schemes[ii] had engagement from health-related bodies in terms of identifying households or generating referrals.

Interviews revealed the possibilities for coordinated local action that can arise from having a Health and Wellbeing Board or local Public Health Team that are engaged on the issue of cold-related ill health and fuel poverty. They also underlined the importance of having an engaged local Public Health Team that can act as broker, coordinator or funder. Where appropriate relationships are in place locally, and national policy levers are able to encourage and emphasise a focus on health-prevention and integration, there is potential for CCGs, HWBs and NHS bodies to all be actively engaged to co-deliver solutions.

Local public health teams were commissioning services for 23.1% of schemes surveyed

Local public health teams were contributing funding for 20.5% of schemes

CCGs had commissioned 7.7%

CCGs were funding 7.7%

Health and wellbeing boards had commissioned 2.6%

The NHS was funding 2.6%

46.2% had engagement from GPs to identify and refer patients

41% had engagement from district nurses

38.5% had engaged practice nurses

23.1% were working with pharmacists

(ii) Due to respondents selecting multiple answers, the percentages presented are greater than 100%.

Funding sources for schemes

Interview examples demonstrated that local public health teams can apply data insights to understand local public health priorities and to identify where there are gaps in provision locally.

Encouragingly, such insights can also bring local actors together to encourage strategic action and enable referral mechanisms to be built. In addition, when funding becomes available to them, local public health teams (and sometimes CCGs) can and will act to directly commission initiatives to tackle fuel poverty and cold-related ill health.

The examples also highlight some resilience when this funding environment changes. Whilst the nature of the services that they can provide might vary, the ways in which they attempt to continue to secure funding for key actions is adaptable.

There is considerable opportunity to attract Energy sector funding to co- finance and support projects once schemes are established.

- **Public health was by far the biggest principal and contributing funder of both capital (17% of schemes) and revenue (20% of schemes) costs.**

Contributions from CCGs or the NHS fell far below this.

- **The NHS and CCGs were principal capital funders for just 2.4% of schemes surveyed respectively.**
- **CCGs were also a principal revenue funder for just 2.4% of schemes.**

Level and duration of funding

The research explored the value of being accessed by fuel poverty and health initiatives and the period over which funding has typically been granted.

- **Respondent schemes had mostly received in excess of £50,000 in funding in the financial year 2017/18 (current funding year).**
- **A small number (7.8%) had received less than £10,000.**
- **9.8% had received between £10,000 and £49,000.**
- **Results indicate that funding trends were much more likely to be static or decreasing**[ii].
- **Almost half (46.9%) reported that their level of funding had remained the same as the previous year.**
- **For over a third (36.7%) it had decreased.**
- **For 20.4% of schemes, the reduction in funding was significant.**
- **For a small number (6.1%), funding had increased to some extent.**
- **6.7% of schemes surveyed had already had their funding stream discontinued between March and September 2017.**
- **4.4% of schemes were due to have their funding discontinued by the end of 2017.**
- **6.7% of schemes also expected to have funding stopped later in 2018.**
- **Just four schemes (8.8%) reported a relatively stable funding situation with three schemes reporting that their funding was secure up until 2019 and one with funding secure until 2020/2021.**

(ii) Due to respondents selecting multiple answers, the percentages presented are greater than 100%.

It was also highlighted that funding security could differ by funding type, for example, whether it was capital or revenue funding. The general picture painted appears to be one of precariousness – even among those with ongoing programmes.

Complex and varied funding challenges were a key issue highlighted by 42% of survey respondents.

They included:

- **The short-term and often stop/start nature of funding available to fuel poverty schemes**
- The lack of consistent or recurrent provision from central government
- **The ability to engage health services in the funding process**
- Securing the investment of staff time
- **Competing health priorities and the requirement of many schemes that match funding must be available**

What kind of evidence will most engage health and public health teams?

The call for evidence asked respondents what type of evidence they had needed to submit in support of a funding application, and which would secure or contribute to securing support or investment from health and public health teams.

Generally, the kinds of evidence required to successfully access funding were those that were able to identify or align with already identified local and national priorities. Preferred evidence was empirical in nature, but around a third of schemes reported success with data that was more anecdotal. A significant role was played by local public health teams or CCGs in the identification and collation of certain data in the first place, prior to any funding being granted. Generally, multiple forms of evidence were used[iv].

- **33% relied on anecdotal evidence from scheme delivery.**
- **33% had submitted evidence that demonstrated the need to tackle cold-related ill health was already an accepted local priority, e.g. through a JSNA or its equivalent.**
- **31% had submitted evidence that the need to tackle cold-related ill health had been identified nationally (such as the NICE NG6 guideline).**
- **19.1% had presented the results of an internal evaluation.**
- **11.9% had presented evidence from an external evaluation.**
- **7.1% had drawn on evidence from studies using self-reported changes as measurement metrics.**
- **4.8% had provided a review of published studies and a critical assessment of their methodologies.**
- **2.4% had provided evidence from studies using quantitative/case-control/ population-level methods.**
- **4.8% of respondents noted that no submission/presentation/critical evaluation of health-related evidence was required.**

In interviews, cases were identified where schemes had received active and engaged support from their local health bodies to collect and produce the required evidence.

(iv) Due to respondents selecting multiple answers, the percentages presented are greater than 100%.

Challenges to evidence presented

Organisations who had been unsuccessful in a funding application to a health or health-related body, or where such bodies had decided not to invest in an initiative, were asked why this had been the case.

A majority (62%) of schemes surveyed revealed that they had been unsuccessful in securing funding from health agencies in the past, or had declined to grant funding in the case of fund providers. A range of reasons for unsuccessful bids were highlighted by 25 respondents. A commonly cited reason was the oversubscription of funding bids, as well as the competitive nature of the funds on offer. This could be symptomatic of the situation where lots of small schemes are running, perhaps several in the same locality, rather than fewer or single, larger-scale schemes.

One scheme had seen a reduction in the amount of funding from a health funder as a result of budget constraints faced by the funding organisation.

Evaluation: Extent of health-based evaluation outcomes being used by schemes

Respondents were asked whether they were currently evaluating a scheme, or if they had done so previously. The majority of schemes (74%) were, or had done so. The most commonly assessed tended to relate specifically to household level impact[v].

- **Household personal satisfaction with physical and general well-being (68.8%)**
- **Energy savings (68.8%)**
- **Impact on pre-existing health conditions (59.4%)**
- **Ability to heat the home (56.3%)**

Fewer cases had measured outcomes associated with service use and savings to society (including NHS). The most commonly assessed included:

- **Local hospital admissions (37.5%)**
- **GP visits (31.3%)**
- **Savings to the health sector (18.8%)**

Respondents highlighted a number of challenges related to the ability to evidence the health benefits and outcomes of fuel poverty schemes. Obtaining specific evidence on the improvement of health conditions was particularly challenging.

More often than not, local schemes have experienced difficulties in accessing data that could allow them to track patient usage of health services.

(v) Due to respondents selecting multiple answers, the percentages presented are greater than 100%.

Scheme delivery: targeting for health

Respondents to the call for evidence were asked to detail what types of households their schemes targeted, the nature of any health conditions targeted, and why that was so. Most respondents were either targeting households that specifically had an existing health condition, or those groups within the population that have been shown to be at risk of fuel poverty and/or cold-related ill health.

- **86.4% targeted were those containing someone with a health condition/disability**
- **75% of respondents targeted low-income households/households in receipt of certain benefits**
- **70.6% targeted households containing older people**
- **61.4% targeted households with families containing young children (under 5 years of age)**
- **38.6% targeted homes below a particular EPC band threshold**
- **45.6% were targeting households in deprived communities**
- **6.8% said that they did not target specific types of households. One respondent went on to note that this can be adapted especially when they are seeking funding from a grant which has specific eligibility criteria**
- **34.1% were targeting rural/off-gas households**

Respondents were then asked to detail which types of health condition (if any) their schemes targeted. Schemes tended to focus targeting on those health conditions that have been most strongly linked with the effects of living in a cold home within the existing evidence base[vi].

- **The most common type of health condition targeted by schemes was COPD (59.1% of respondents).**
- **Over half of respondents (52.3%) were respectively targeting:**
  - **cardiovascular disease**
  - **heart disease**
  - **strokes**
  - **asthma**
  - **bronchitis**

Furthermore:

- **50% targeted pneumonia**
- **47.7% noted that they targeted other circulatory diseases and other respiratory diseases respectively**
- **45.6% were targeting those with mental health conditions**

The most common reason for schemes targeting specific health conditions was a combination of one or more of: information gathered from the evidence base/particular referral relationships/ funding requirements (51.9% of respondents).

A common form of evidence used was the NICE guideline, which was explicitly highlighted by 36% of respondents. This was often used alongside other methods of accessing advice, evidence and establishing referral relationships. 8% went on to note that they also worked with information from local CCGs and public health, and others noted that they used evidence from the Royal College of General Practitioners, Marmot Reports, the Cold Weather Plan for England, and the Hills Review. They also utilised a range of referral routes including: local hospitals, community and voluntary sector organisations and local government agencies.

(vi) Due to respondents selecting multiple answers, the percentages presented are greater than 100%.

Cross-sector integration: the national picture

The research investigated what is happening at a local level integrated, prevention-oriented delivery and cross-sector collaboration between health, public health, and other local authority departments. In addition, the primary analysis sought to understand how far such efforts at a local level are being reflected at the national level and what mechanisms there are in place currently that could further enable greater integration nationally or locally. This involved detailed interviews with key national departm

BEIS

BEIS (and its predecessor DECC) has ensured the health perspective is embedded within key documents like the Fuel Poverty Strategy. This has involved building good relationships with certain branches of the Department of Health and Public Health England. Interestingly, this suggests that the nature of cross-sector collaboration happening nationally reflects that happening at a local level in terms of seeing more engagement from public health agencies (like PHE) than NHS bodies. Recognising that the impacts of living in fuel poverty and experiencing cold temperatures at home fall beyond the energy sector alone, BEIS also described how the provision of national funding such as the Health Booster Fund and DoH's Warm Homes, Healthy People Fund had been able to encourage further cross-sector collaborations at a local level.

Our discussions with BEIS also outlined efforts that have taken place at a national level to direct and target the funding that is currently available to those deemed most vulnerable from a fuel poverty perspective. There was, however, acknowledgement that further support is still required from the top down when it comes to encouraging the kind of cross-sector collaborations that are aimed at health prevention. In addition, focusing on helping local authorities to implement best practice lessons from elsewhere could help to achieve short-term gains while strategic, top-level actions continue to be developed.

NICE

NICE has played a key role in ensuring a blueprint exists for tackling the risks of cold homes, fuel poverty and excess winter mortality both locally and nationally.

NICE also reflected on the complexity involved with encouraging a shift to prevention within the NHS, and how persistent encouragement is needed to make sure recognition of fuel poverty and the health impacts of cold homes become embedded in sustainability and transformation planning.

Reflecting on how integration might be further encouraged or 'helped' at a policy level, it was emphasised how more collaboration between departments in central government (alongside appropriate investment) was needed to ensure different policy agendas can better align, especially in a context where local government is facing increasing financial pressure.

PHE

PHE has also played an active role in ensuring the impact of housing, cold homes, fuel poverty and excess winter mortality is addressed locally and nationally.

It was recognised that being able to encourage actions from the top-down to replicate and implement best practice locally relies on consistent promotion and access to suitable resources.

The housing and environmental health teams also observed that it would be difficult to replicate best practice actions consistently on a national scale without statutory requirements for all local authorities to prioritise the issue.

Recommendations

These discussions, alongside the feedback received during the final workshop stages of the primary research helped to define multiple recommendations about how the promising emerging links between health and housing can be strengthened both locally and nationally.

These Recommendations are laid out in the following tables. It is however accepted that further work will be required to develop the impetus to secure these aims and the chronology or sequencing of these actions may mean they collectively may take several years to fully achieve.

Recommendations for (A) Scheme Providers	Who Should Act
Recommendation 1: Local delivery programmes should follow NICE NG6 guidelines to develop one recognised local hub and to identify and engage relevant individuals within health, public health, and housing to work together to achieve outcomes relevant to the priorities of all.	**Local public health** **Local authorities** **CVS** **Scheme developers**
Recommendation 2: Local delivery programmes should first identify the outcomes, pathways and language necessary to link local identified health priorities with national strategic aims prior to engaging health sector professionals. Delivery programmes should engage local public health teams as an ideal place to start the relationship.	**Scheme developers,** **Local public health** **Local authorities** **CVS**
Recommendation 3: Local public health practitioners should be persistent in making their local case for addressing cold-related ill health to secure senior local public health buy-in. Practitioners and directors of public health alike should be persistent in using local top- and lower- level routes into health bodies to engage relevant colleagues (health and wellbeing boards, CCGs and NHS professionals).	**Scheme developers,** **Local public health** **Local authorities** **CVS**
Recommendation 4: Health commissioning bodies should review new ways of using existing mechanisms to ensure more consistent delivery in line with the NG6 and the NHS Five Year Forward View. This could include: • the establishment of joint commissioning agreements with local authority partners that would allow schemes relevant to the priorities of both to be delivered. It might also include; • applying innovative uses of Better Care Fund monies to pilot and deliver integrated, prevention-oriented services locally or; • using withheld funds more innovatively through, for example, hospital readmission fines, ring-fencing such to support local social prescription services that can address the social and environmental causes of those hospital readmissions.	**Local public health** **Local authorities** **CVS** **CCG** **NHS** **NHSE** **PH** **PHE**
Recommendation 5: Health sector bodies should review how they incorporate the requirements of the Social Value Act into their service delivery, and to support the wider roll-out of social prescribing 'plus' models that include initiatives to tackle cold-related ill health.	**Any health body subject to PCR2015** **Crown Commercial Services** **DHSC**
Recommendation 6: Delivery programmes building and evidencing a case for support should compile the full set of data available to them e.g. fuel poverty statistics, tenure data, PHOF performance indicators, identifying groups at risk of cold-related ill health locally, hospital admissions data and GP/CCG performance under relevant Quality Outcomes Framework (QOF) indicators. They should look to approach public health and CCG analysts to access some of this data, and to help analyse local trends and understand their key priorities.	**Scheme developers** **CCGs** **Local public health** **Local authorities**
Recommendation 7: Local areas looking to replicate good practice evaluations of relevant schemes should consider use of existing and available toolkits, such as those produced by Lewisham Council, the Centre for Sustainable Energy and Cornwall Council/Citizens Advice: **ww**	**Scheme developers**

Recommendations for (B) Policy-makers	Who Should Act
Recommendation 8: Long-term monitoring and evaluation is recommended at a national scale to assess how far appropriate support provided through social care budgets to address the social determinants of health, including homes, is alleviating corresponding pressures within the NHS. Minimum evaluation criteria to monitor and evaluate scheme delivery should be produced, thus standardising evaluation activities across the UK. The introduction of a new system of performance monitoring that could adequately and appropriately compare cold-related ill health prevention schemes and activities should be considered. This could take into account feedback on Public Health Outcomes Framework (PHOF) performance; the content and delivery progress of Sustainability and Transformation Plans (STPs); performance under the Quality Outcomes Framework; and housing and energy-related indicators, such as those provided through HECA.	**NHS Digital** **NHSE** **DHSC** **MHCLG** **BEIS** **PHE** **HMT**
Recommendation 9: The Department for Business, Energy and Industrial Strategy should continue work to fully monetise the health benefits of meeting fuel poverty commitments. BEIS should also make the improved HIDEEM model available to local practitioners as soon as possible and to publish appropriate user guidance alongside.	**BEIS** **HMT** **DHSC** **DEFRA** **DExEU** **DoE** **HO**
Recommendation 10: The perceived constraints of the regulations surrounding data-sharing should be challenged, enabling greater data-sharing in a standardised and regulated fashion between health and local delivery bodies. This will facilitate monitoring of intervention outcomes as well as help to identify households to target for support.	**BEIS** **NHS Digital** **DHSC** **MHCLG** **BEIS**
Recommendation 11: NICE, with support from PHE, NHSE and BEIS should continue to promote and encourage implementation of its NG6 guidance across the board, and continue to produce and disseminate resources and shared learnings to facilitate the development of local, single point of contact health and housing services. In particular, NICE should carry out further promotional activities with a specific focus on embedding NG6 in Sustainability and Transformation Planning within the NHS.	**NICE** **PHE** **NHSE** **BEIS**
Recommendation 12: A new ministerial position or Cabinet Office-led working group would support cross-departmental working, join up national frameworks and help co-ordinate national actions which can support the implementation of actions to address ill health from cold homes.	**Cabinet Office** **DHSC** **MHCLG** **BEIS**
Recommendation 13: In the short-term, consideration should be given to the re-establishment of government-funded grants to encourage the activities previously undertaken via DoH's Warm Homes Healthy People Fund (WHHP) or DECC's previous Health Booster Fund to act as a pump priming accelerator to promote long-term cross organisational working.	**DHSC** **BEIS** **PHE** **HMT**
Recommendation 14: Building on the learnings from Vanguard Sites, it should be considered how the NHS can be mandated to change the way it delivers its services to focus more on prevention and service integration, as set out in the NHS Five Year Forward View 2014. An escalating percentage of healthcare budgets could be mandated and ring-fenced for use on preventative health care.	**DHSC** **Cabinet Office**
Recommendation 15: It is recommended that Health and Wellbeing Boards should be given limited executive powers to enforce the actions deemed necessary in the local JSNA as they are mandated to produce a joint strategy but have no powers to enforce a plan or commission actions for addressing identified needs. They should also be required to have due regard to the enforcement of local housing standards and mandatory participation via relevant Environmental Health teams.	**DHSC** **Cabinet Office** **MHCLG**

Next steps and action where further research may be warranted

Finally, this research has highlighted some undeniable gaps within the evidence base between the relationship between cold homes and health. This includes fully understanding those areas where NHS data-sharing is making a discernible difference to the targeting of health issues associated with cold homes.

The National Institute for Health and Care Excellence (NICE) evidence review further identified gaps including a "lack of rigorous, UK-based epidemiological evidence on the degree to which different housing energy efficiency interventions modify the risk of cold temperature-related deaths and illnesses".

We call upon relevant health bodies and government departments to jointly review the recommendations made in this report and to identify where improvements can be made.

METHODOLOGY

Understanding of this current status of delivery 'on the ground' was developed through three primary research phases.

Between 22nd September and 10th October 2017, NEA issued a call for evidence to scheme providers across the UK that are either entirely or in part deliberately targeting households containing someone with a health condition or disability or which are either entirely or partly funded by a health-related body (or health funding has been sought).

The survey was disseminated to around 400 contacts working in fuel poverty or health-related fields. This included all local authority heads of housing and environmental health, Directors of Public Health, and CCG leads. In total, 68 responses were received, representing a 17% response rate.

In Stage 2 NEA also carried out 12 qualitative telephone interviews with local scheme providers and commissioners. Interviewees represented local public health teams, a local CCG, a local NHS organisation and local housing and/or environmental health teams. Four qualitative telephone interviews with key strategic individuals, including representatives from BEIS, Public Health England, NICE and the Buildings and Research Establishment (BRE).

Our recommendations were then informed by two regional workhops which invited key stakeholders to stress test our thinking and provide feedback on how they might be acted upon more universally.

Glossary of Terms

CCG	Clinical Commissioning Group
PHE	Public Health England
NHSE	NHS England
DHSC	Department of Health and Social Care
BEIS	Department for Business, Energy and Industrial Strategy
SROI	Social Return on Investment
QALY	Quality Adjusted Life Year
STP	Sustainability and Transformation Plan
NICE	National Institute for Health and Care Excellence
PHOF	Public Health Outcomes Framework
HIDEEM	Health Impacts of Domestic Energy Efficiency Model
HWBs	Health and Wellbeing Boards
JSNAs	Joint Strategic Needs Assessments
JHWBs	Joint Health and Wellbeing Strategies
COPD	Chronic Obstructive Pulmonary Disorder

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- Buildings Research Establishment (BRE)
- Citizens Advice
- Committee on Fuel Poverty
- Cornwall Council/Council of the Isles of Scilly
- Gloucestershire County Council
- Islington Council
- Leicestershire County Council
- Lewes District Council
- Lewisham Council
- Liverpool City Council
- NHS Gloucestershire Clinical Commissioning Group
- Nottingham City Council
- Oldham Council
- Oxford City Council
- Public Health England
- The Department for Business, Energy and Industrial Strategy (BEIS)
- The National Institute for Health and Care Excellence (NICE)
- University Hospitals of North Midlands (Stoke-on-Trent)
- Wigan Council

SECTION 1: INTRODUCTION

Whilst there are issues with the fragmented nature of the evidence base around cold homes and health to date, **current available evidence is and has been enough to engender official recognition of the problem** by health-related bodies such as the National Institute for Health and Care Excellence (NICE), Public Health England (PHE), and wider health-based institutions such as the Royal College of General Practitioners (RCGP), Royal College of Nursing (RCN), Royal College of Midwives and Faculty of Public Health (FPH). Cold homes have been shown to impact upon **excess winter morbidity and mortality; cardiovascular and respiratory disease; mental health; and other health conditions**. These health conditions can affect and have different detrimental impacts on all age groups and, as such, are **cross-generational**.

However the ability for such national policy recognition and support has not been reflected in the development of consistent work programmes at a scale sufficient to deliver the necessary improvements.

Under One Roof was commissioned by Liverpool City Council and funded by the Department for Business, Energy and Industrial Strategy (BEIS). It examines evidence and practice where health bodies have worked in partnership with fuel poverty alleviation schemes and identifies the type of evidence commissioners are requiring from scheme providers[(vii)].

The report summarises the best current evidence that links fuel poverty, or living in a cold home, with poor health outcomes and how that is being used to deliver joint programmes of work across the health sector and the housing energy efficiency sector.

It is aimed at two key audiences. Firstly, it is aimed at local programmes delivery organisations, for which it demonstrates examples of best practice joint working. Secondly, it is aimed at national policy and programme funding organisations, for which it highlights the current barriers to large-scale delivery of national policy aspirations.

The report is a review of the different approaches taken by local public health teams and national NHS and CCG providers to addres the issue of cold-related ill health. The report proposes national and local recommendations to enable broader replication of the current best practice in the UK.

THEME 1
Nature of health sector/public health involvement and sources of funding for health-based fuel poverty schemes

THEME 2
Creating a local business case for support

THEME 3
Evaluating schemes and measuring outcomes

THEME 4
Cross-sector integration (locally and nationally) and scheme delivery

(vii) Due to respondents selecting multiple answers, the percentages presented are greater than 100%.

Section Two focuses on current evidence on the health impacts and benefits of treating cold homes, and provides necessary context to the report. In particular, it:

- Highlights the current evidence of the health impacts of living in a cold home
- Examines the evidence base as it stands to date and how it has been used by various official bodies to drive strategic action
- Describes the current policy landscape for action on cold homes

Sections Three, Four and Five profile our main research findings. This covers:

- Which health-based fuel poverty schemes have been able to secure engagement (financial or otherwise) from the health sector or public health to date
- Examines the extent to which health sector bodies or public health have been involved in decisions to commission and fund health-related fuel poverty schemes
- Reviews the types of evidence required by health sector bodies and public health teams to lend their support to initiatives and how evidence has been collected and presented in different areas

Section Six examines the extent of programme and policy integration at national level.

Section Seven interprets our research findingsand suggests what actions may still be needed at a local and national level to ensure progress is achieved, "Under One Roof". This includes:

- Seeking to explain why particular kinds of evidence may be valued by some health sector bodies and public health teams but are not yet acted upon more universally
- Identifying which local and national mechanisms may need to be adjusted or put in place before actions to commission, fund or support cold-related health and housing services can be made the norm

Appendix A presents the results from two regional stakeholder workshops carried out as part of this research.

The report's conclusions highlight that some progress is being made at a local and national level with examples of where well-evidenced joint working across health and housing on energy efficiency and fuel poverty is working. However, there are threats to even current levels of funding and further work is needed both at national and local level to ensure that progress is maintained, accelerated and tracked effectively, and that the health impacts of cold homes become embedded in local sustainability and transformation planning within the health sector.

Further collaboration between energy, housing and health departmentsis desirable and deliverable, but the separate policy agendas must align more fully to secure more effective and concrete local actions.

Sixteen final recommendations are made alongside a summary of national stakeholder perspectives.

SECTION 2: CURRENT EVIDENCE ON THE HEALTH IMPACTS AND BENEFITS OF TREATING COLD HOMES

2.1 Introduction to this chapter

This chapter sets the scene for understanding the national and local contexts in which the Under One Roof research was undertaken.

It begins by exploring the nature of the existing evidence base around the health impacts of cold homes, and then examines this evidence in more detail. In addition, the chapter aims to highlight the kind of health outcomes that have been achieved by deploying energy efficiency and advice interventions. It also profiles how the available evidence base is currently being applied across the UK to establish relevant strategic frameworks by various official bodies to strengthen the links between health and housing.

2.2 The impact of cold conditions on Excess Winter Morbidity and Mortality

Previous studies regarding the links between Excess Winter Morbidity and Mortality and the relationship between cold and damp housinghave been identified from across the United Kingdom and internationally.[1 - 6]

In summary, the existing evidence highlights:

- The thermal inefficiency of UK buildings has been linked to higher rates of excess winter illness and deaths than in countries that experience colder winters.[7 - 13]
- For each 1°C drop in outdoor temperature below 19°C, there is a 2.8% increase in mortality for those who live in the coldest 10% of homes while there is a 0.9% increase for those in the warmest 10%.[12]
- Those living in the coldest 25% of homes are 20% more likely to die in the winter than those living in the warmest 25%.[12, 14] Recommendations from the World Health Organisation (WHO) state that living rooms should be kept at 21°C and bedrooms maintained at 18°C for at least 9 hoursof the day.[1]
- It is likely that warmer indoor temperatures afford greater protection when entering colder outdoor conditions than leaving a cold house, suggesting that the total cold stress experienced by an individual can affect their health.[1, 15]
- Temperatures below 16°C can affect respiratory function.
- Those below 12°C can cause cardiovascular strain.
- Risk of death at population level becomes apparent in temperatures between 4-8°C.[1, 14]
- When the outdoor temperature does fall, deaths from coronary thrombosis will peak after 3 days, and deaths from respiratory illness will peak after 12 days (indicating a seasonal effect of cold temperatures on mortality).[11]
- Cardiovascular disease accounts for around half of excess winter deaths in the UK, and respiratory conditions account for a third.[4, 12, 13]
- Pre-existing conditions may be exacerbated by cold indoor temperatures, increasing vulnerable people's risk of death or illness.[16]
- Some studies have highlighted the nature of the links between Excess Winter Morbidity and Mortality and the relationship between cold and damp housing are particularly acute in a UK context and that excess winter deaths are directly linked to fuel poverty.[17, 18]

Furthermore, increased prevalence of ill health resulting from the cold is associated with greater demands on UK, national or local primary or secondary health services during the winter months when services are typically under the greatest strain:

- With each 1°C drop in temperature below 5°C, GP consultations for respiratory illness in older people increase by 19%,[19]
- Hospital admissions for Chronic Obstructive Pulmonary Disease (COPD) are four times more likely to happen over the winter.[14]
- Studies have shown higher bed occupancy and admission rates as a result of respiratory conditions in winter.[11, 19, 20, 21]

There are also some significant studies that have tried to investigate the link between improvements to housing via energy efficiency measures and positive improvements on health and wellbeing.[44]

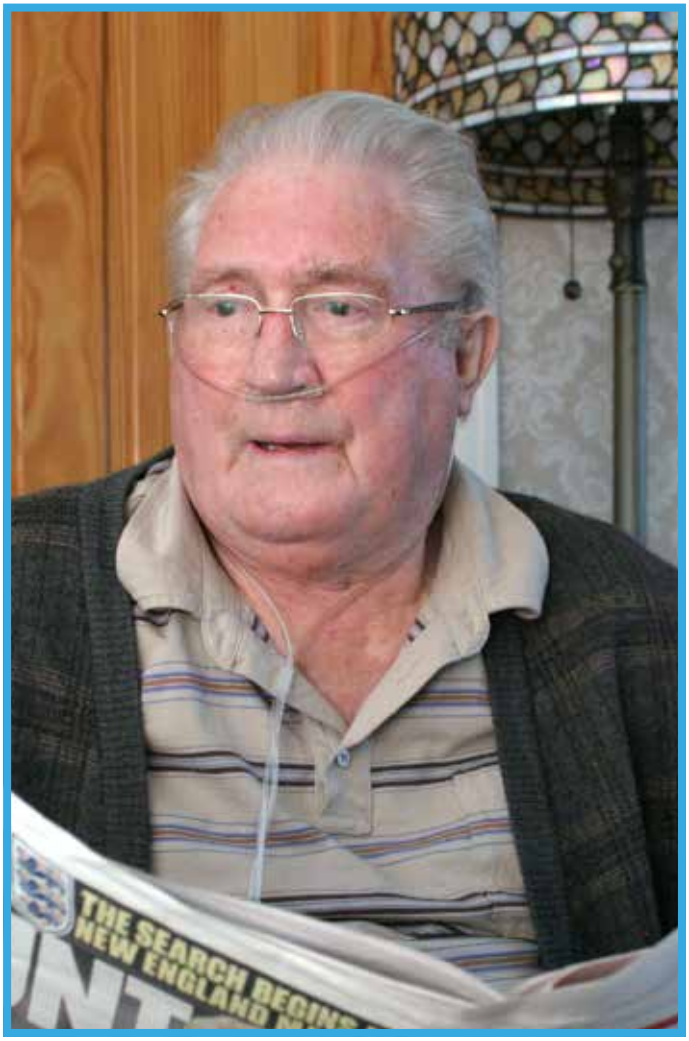
Evaluation of the Warm Front Scheme in 2008 found that the 70% of households that increased indoor temperatures to WHO recommended levels following the receipt of heating measures did not show an increase in outdoor cold-related mortality risk, whereas the mortality risk for households that did not increase indoor temperatures increased by 2.2% with every 1°C fall in outdoor temperatures. The study estimated that the provision of heating and insulation to households increased the life expectancy of men by 10 days and women by 7 days. Modelling based on this finding showed that, if replicated at a population level, winter deaths would be reduced annually by 0.4 per 1000 occupants.[22, 23]

The Central Heating Programme evaluation in Scotland found that 40% of recipients who had previously reported respiratory, circulatory or rheumatic health conditions said the condition had improved post-intervention.[24] Furthermore, around two-fifths of households that received measures through the Warm and Healthy Homes Fund (WHHF) Partnerships programme reported that their physical and/or mental health had improved. Just over two-fifths (42%) said that their physical health was either a little or much better than before their intervention, while 39.6% said this of their household's mental health.[32]

2.3 Respiratory disease

Respiratory disease has been linked to living in a home that is cold and damp (and among those with fuel debt).[6, 25, 26 & 27] Cold air can cause airways to constrict and stimulate mucus production. This affects the bronchial lining of the respiratory tract and can reduce resistance to infection (risking bronchitis, pneumonia, and bronchoconstriction in asthma or COPD sufferers).[14, 20]

Homes which have damp or mould have been linked with a 30-50% increase in respiratory problems (with asthma sufferers two to three times more likely to live in a damp home than non-sufferers).[15, 28] Damp can encourage mould and bacteria to grow (known allergens), thus leading to negative impacts such as allergies, upper respiratory tract infections and asthma – especially in children.[28 - 37] Studies have found a dose-response relationship between the severity of damp and the severity of respiratory obstruction.[33]



In children:

- Those living in cold homes are more than twice as likely to suffer from asthma or bronchitis as children that do not (those in damp and mouldy homes are three times more likely).[38]
- They have a 32% greater risk of wheezing illness and 97% greater risk of suffering from breathing problems at night.
- There is a suggestion that cold temperatures could be related to incidences of sudden infant death syndrome in children younger than 12 months.[37]

In contrast:

- A central heating intervention in Cornwall saw a reduction in the number of school days missed due to asthma (a drop from 9.3 out of 100 days to 2.1 days) and reductions in the number of nocturnal coughing incidences.[39]
- Similar findings have been reflected in intervention studies in New Zealand.[23, 26, 40, 41]
- Other studies have found that the provision of central heating systems can act to prevent further deterioration in child respiratory health, rather than actively improving it (though other deprivation-related confounding variables may have influenced the results of the study in question).[42, 43]

In adults:

- Evaluation of the Nest scheme in Wales found that there was a 3.9% decrease in the number of GP visits for respiratory conditions in the intervention group, and 9.8% increase in the number of visits for the control group.
- For asthma events, the intervention saw a 6.5% decrease in GP visits[44] whilst the control group saw a 12.5% increase.

Living in a cold and damp home is associated with incidences of respiratory disease in children, the elderly, and those suffering from chronic respiratory conditions.

It can also increase the risk of suffering from cardiovascular disease.

Whilst intervention studies tend to reply on self-reported impact (with some notable exceptions such as the NEST evaluation in Wales), they do suggest that the impact of heating interventions on respiratory health can be substantial, especially for children.

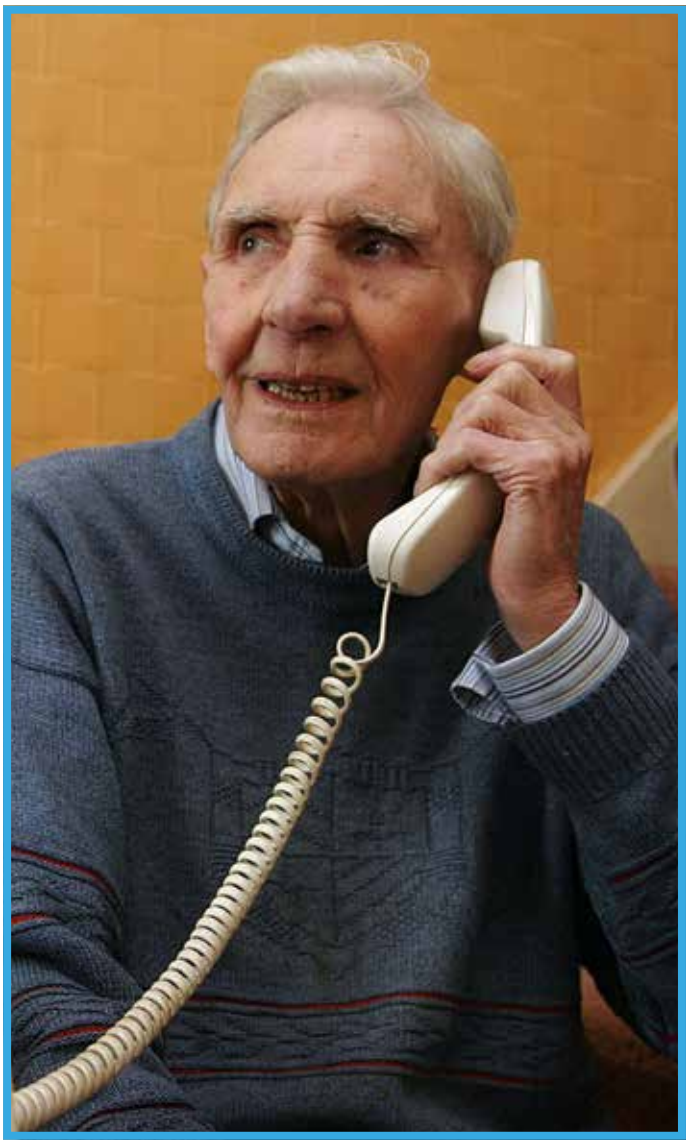
2.4 Cardiovascular disease

Coronary events and deaths resulting from ischaemic heart disease and cerebrovascular disease are more likely to happen in cold temperatures.[20, 45]

- It has been estimated that 9% of hypertension in Scotland could be prevented by maintaining indoor temperatures above 18°C.[46]
- Increased plasma fibrinogen levels and factor VII clotting during winter account for a 15% and 9% rise in coronary heart disease, respectively.[47]
- Cold temperatures can cause blood pressure (systolic and diastolic) to increase due to a narrowing of the blood vessels and increase the risk of thrombosis, heart attacks or strokes.[1, 13, 15, 48 - 52]
- These effects begin almost immediately after the temperature drops, and can continue for up to 2 days afterwards.[50]
- For older people, this occurs in temperatures below 12°C when they are exposed for more than two hours, (though some studies suggest the effect begins at 18°C).[14]
- A 1°C drop in living room temperature can lead to a 1.3mm Hg rise in systolic blood pressure and a 0.6mmHg rise in diastolic blood pressure in people aged 65-74.[53]
- Higher rates of excess winter deaths in the elderly could be related to their higher baseline level of arterial disease (which increases their vulnerability to thrombosis).[50]

Cold stress can result in repeated acute rises in blood pressure (chronic hypertension), and this can occur when going from a cold home and into cold outdoor temperatures, or when leaving one room of the home to go to another cold room.[54, 55]

- Studies have suggested that having bedrooms heated to 22°C at night are associated with lower morning systolic blood pressure than that for those who sleep in bedrooms heated to 12°C (reducing the risk of haemorrhagic stroke).
- A study in New Zealand found that retrofitting energy inefficient housing had a protective effect for a sub-cohort of scheme recipients with cardiovascular conditions.
- Other studies have identified self-reported improvements in blood pressure amongst scheme recipients.[53]



The evidence base to date suggests that living in a warm home can act to mitigate individual susceptibility to cardiovascular disease

2.5 Mental health

Strong associations between self-reported mental ill health, fuel poverty (including fuel debt) and cold homes have been found by numerous studies.[1, 14, 15, 20, 48, 59 - 65]

- NATCEN found that 10% of people suffering from a Common Mental Disorder (CMD) were not able to keep their homes warm enough during the winter and 15% reported mould in their homes (compared with 3% and 8% of people without CMD).[6]

- Living in a cold home can also lead to social isolation,[1, 66] stress and worry.[42]

- It has been suggested that Alzheimer's disease and related dementias (ADRD) contribute to excess winter mortality in the UK, and that people suffering from ADRD tend to find managing heating and energy routines at home difficult.

Children living in poor quality, cold housing are more like to suffer from mental ill health.
It can impact upon child motivation, educational attainment and task persistence, as well as resulting in feelings of helplessness.[14, 15, 20, 68 - 71]

- NATCEN found that 28% of young people living in cold homes manifested multiple mental health risks, as opposed to 4% for those living in warm homes. Inadequately heated homes were independently shown to be the only housing quality indicator associated with 4 or more negative mental health outcomes in young people.[1, 38]

Intervention studies have repeatedly shown associated improvements in mental health following energy efficiency and advice interventions.[1, 32, 61, 72 - 74]

- These are often related to the alleviation of financial stress and worry, increases in perceived value for money of heating systems, increased control over heating systems and heating management, reduced social isolation and generally feeling warmer and happier at home.[1, 23, 66, 69, 71, 75]

- Evaluation of the Warm Front scheme found that recipients were around 40% less likely to report high levels of psychological distress following the intervention than before, and the incidence of reported CMDs fell from 300 to 150 per 1000 residents.[22]

2.6 Other health conditions

Other conditions that can be affected or worsened by the cold include Sickle Cell Disease (SCD).

- Comfortable temperatures for someone with SCD range from 20°C to 30°C, though those on low incomes may struggle to afford to meet the cost of maintaining a healthy temperature at home.

- A hospital admission for SCD can cost £637-£11,367 a time, and some have argued that part or fully subsidising the heating bills of SCD sufferers would be more cost effective to the NHS.[76, 77]

For others, cold homes can be linked to the experience of aches, pains, underlying joint and muscular problems or skin conditions,[69] or arthritic and rheumatic pain.[1, 15, 23, 61, 78]

Colder indoor temperatures can also increase the risk of falls and accidents amongst the elderly by reducing strength and dexterity.[1, 14, 15] Having a health condition that is related to cold indoor temperatures can furthermore place households at risk of fuel poverty by increasing their heating requirements for comfort and warmth.

For households using inappropriate, flueless heating sources in an effort to stay warm at home, or those who for reasons of cost may have fuel

burning appliances whih are not serviced, there is also the increased risk of carbon monoxide poisoning (CO).[14] The factors which cause or expose households to the risk of fuel poverty – low income, poor quality housing and the age and health of occupants – can impact on the heating and servicing behaviours of households to elevate CO risk in homes.[79]

Cutting back on food spending in order to meet the cost of paying for energy is also a risk factor associated with fuel poverty.[1, 80, 81]

- This brings with it the risk of malnutrition, poor infant weight gain, and adverse impacts upon other health conditions such as tuberculosis (TB) or diabetes.[1, 14, 66, 82 - 85]

- Evaluation of the Warm Front scheme found that 10% of households felt they could buy more food (and of a better quality) following the receipt of central heating measures. 20% felt better able to cook at home since kitchens that were previously too cold were now comfortable to work in.[78]

2.7 The cost of cold homes

In 2016 BRE released its revised Cost of Poor Housing (COPH) report called the Full Cost of Poor Housing[86]. The report:

- Estimates the cost of poor housing to the NHS based on EHS and NHS treatment costs from 2011 and includes treatment and care costs beyond the first year.

- Includes additional societal costs including the impact on educational and employment attainment.

- Provides information in terms of QALYs (Quality adjusted life years) as well as cost benefits, allowing housing interventions to be compared with other health risk factors.

- Estimates that the overall cost to the NHS of poor housing containing category 1 hazards is £1.4bn, with costs to society which includes the medical costs plus, for example, lost education and employment opportunities of £18.6bn.[67]

- The methodology is also widened to include substandard housing, not just those containing category 1 hazards but also those considered worse than average.

Research by the BRE in 2010 suggested that **if all of the English housing stock with a SAP below the historic average of 41 was to be brought up to at least the current average of 51 through heating and insulation improvements, the health cost-benefit to the NHS would be some £750 million per annum**. Other BRE estimates put the **costs to the NHS of energy inefficient housing at £192 million (£35 million of which was in the private rented sector)**. Use of the initial version of the BRE category 1 health cost calculator put the **estimated private rented sector costs to the NHS at between £37 and £674 million depending on SAP rating and occupancy level**.[87]

In addition, Stafford[88] calculated that:

- The costs of cold homes to the NHS for cardiovascular disease alone was £3,124 per case

- For respiratory illness, it was £4,359 per case.

- For falls in the home costs were £2,453 per case

- For common mental disorders (CMD) costs were £1,543 per case.

- These figures demonstrate the potentially substantial costs to the NHS per case of cold-related ill health.

Similarly, it has been estimated that **chronic lower respiratory disease and pneumonia accounted for 3.2 million bed-days in 2013-14 with an associated cost to the NHS of £875 million**.[1]

Even in 2000, researchers were estimating that between £43.78 million and £112.20 million could be saved each year through health improvements resulting from energy efficiency improvements to the housing stock.[89]

Evaluation of Northern Ireland's Warm Homes programme estimated that between 2001 and 2008, the £109 million invested in the programme resulted in £13 million in NHS savings through improvements to child health. This meant 12% of the initial investment was recouped. When combined with health savings resulting from improvements to adult health, two-fifths (43%) of the original investment could have been recouped.[84]

Elsewhere, evaluation of the Kirklees Warm Zone Project found that the installation of central heating generated £1.27million in additional benefits, such that for every £1 spent 42p in health benefits was produced.[90]

A cluster randomised trial in which 1350 houses were retrofitted with insulation in New Zealand found that the intervention resulted in $3,374 of benefits, compared with $1,800 of costs. Of these benefits, 61% had accrued in the health sector. Evaluation of the Warm At Home Programme by Sheffield Hallam estimated that the programme had led to 121.8 QALYs. This was the equivalent of around £2,436,000 in additional benefits. For every £1 of funding received, the programme produced £4 in health-related benefits. The evaluation found that although cost effectiveness reduced as the cost of the intervention increased, the health and wellbeing benefits that accrued from higher cost-interventions were still greater. The evaluation did not account for the longer-term health benefits that would accrue over time following higher cost interventions, nor did it account for the wider social benefits.[91]

Nicol (2010) similarly found that energy improvements were at their most cost-effective when they remove households from HHSRS Category 1 situation (SAP below 35) and to a comfortable,[87] affordable home with a SAP of at least 50.

2.8 Recent recognition of importance of energy advice alongside energy efficiency measures

It should also be noted that energy efficiency interventions that increase the air-tightness of properties may also result in some negative health outcomes around allergies and exposure to indoor pollutants.[92, 93]

Whilst these studies and observations are valid, they also point to the value of good quality and timely advice delivered at the same time as energy efficiency interventions. This too has been widely acknowledged as essential by practitioners and researchers, as well as by the energy regulator Ofgem, and more recently by the UK Government with the Bonfield Review which addresses energy efficiency consumer advice and protection, standards and frameworks for enforcement.

Advice not only helps to ensure that beneficiary households can effectively use any new technology, it can also help to ensure that beneficial behaviours are adopted and any energy-related problems or challenges can be addressed.

As researchers from Aberystwyth University (2016)[94] concluded *"Energy efficiency is as much about adapting human behaviour as it is about installing physical technologies"*.

This finding was also reinforced in a recent evaluation of NEA's own Health and Innovation Partnerships (HIP) programme[95]. Under HIP, each grant-funded project was required to deliver energy-related advice – in relation to the specific intervention being made. The types of advice provided included those related to energy practices, health and wellbeing, market engagement and financial wellbeing. Access to energy-related advice included the following forms of support:

- The importance of keeping warm and well at home
- The importance of ventilation and how to avoid condensation and damp problems
- Energy bill and switching advice
- How to use new heating controls, existing or new heating systems
- Managing fuel debt, benefit advice and income maximisation
- Advice on further energy-related grants or energy supplier support such as the Warm Home Discount (WHD) and Priority Services Register (PSR)

As a result, HIP helped deliver considerable improvements in how households experience their home heating, including aspects such as control over heating systems and ease-of-use but also thermal comfort and energy bill affordability.

Indeed, two-thirds of households that received significant energy saving measures (new heating systems or solid wall insulation) and a third who received smaller energy measures (like new controls or draught-proofing) reported that their energy bills were more affordable.

Among HIP beneficiaries, pre-existing health conditions and disabilities, including those known to be associated with cold homes were commonplace. Both large and small measures-based interventions were also shown to be associated with improvements to both physical and mental health. Over half of households who received large measures and almost half of small measures households, associated changes in their pre-existing health conditions to the receipt of their HIP interventions. In particular:

- 51.4% of large measures households and 46.7% of small measures households with pre-existing health conditions said they thought the change was associated with their HIP intervention.
- General health was improved for 36.2% of large measures households and 31.5% of small measures households.
- General mental health was improved for 35.3% of large measures households and 26.4% of small measures households.
- 43.7% of large measures households and 24.3% of small measures households said that post-intervention there had been an improvement in a pre-existing health condition and/or disability (or ability to cope with them).

2.9 Extent of the current evidence base

From the breadth of evidence reviewed and discussed above, the relationship between living in a cold home and an increased risk of respiratory and/or cardiovascular disease, mental ill health and a range of other conditions is apparent. Whilst less developed, also apparent is the positive outcomes that can be achieved as a result of energy efficiency and wider advice interventions.

The problem of poor housing, cold homes and ill health is however complex and multifaceted. If we are to adequately understand the issue, and employ such understandings in the course of policy development and practice, then research that encompasses a range of methodological approaches is required.[96 - 100]

It is also true that the field of research is so diverse that it has become quite fragmented. While not inherently a problem in itself, this can create difficulties for bringing existing evidence together for the formulation of policy-based and practical propositions.[101, 102]

This challenge is also compounded by difficulties in establishing conclusively and empirically what the causal pathways between living in a cold home and ill health are. This is due to multiple confounding factors, and that changes to health are likely to manifest in the long term, whereas existing studies tend to have more short-term monitoring periods.[1, 31, 32, 43, 61, 96, 103]

In addition, the following observations of the extent of the current evidence can be made.

- Research on excess winter mortality and morbidity has tended to look at large, routine data sets at population level, whilst scheme evaluations have focused on more immediate and self-reported health impacts for individuals.[100]
- Cross-sectional studies have used varying sample sizes and approaches, and do not allow for easy generalisations or the identification of statistically significant relationships.[100, 104]
- Where observational studies have been conducted, they have not necessarily accounted for environmental or behavioural changes that would lead to differences in cold exposure outside of a lab setting, or may not have adjusted for other confounding variables.[105]
- The evidence from intervention studies can also be limited by ethical considerations that may make the use of the control group untenable or undesirable.[11]
- Some studies[22], on the other hand, have used modelling techniques in order to estimate the health impacts of an intervention.

As noted in the introduction, the report returns to where key research or evidence gaps may need to be addressed following the recommendations at the end of the report. The following section highlights how the current evidence is being applied in the UK to establish relevant strategic frameworks by various official bodies to strengthen the links between health and housing.

How the current evidence base is driving strategic action

Given the stark impacts noted above, it is critical to understand the extent to which the health sector and health-related bodies are responding to the current evidence base. In this section we therefore, highlight the actions that are already being taken to address the social determinants of illhealth caused by fuel poverty and poor housing. This in turn provides necessary context for our primary research findings presented in the following section.

2.10 Public health

As an executive agency of the Department of Health and Social Care (DHSC), Public Health England (PHE)'s mission is to protect health and address health inequalities, as well as promotion of the health and wellbeing of the nation.It has four main functions:

1. Protect the public from infectious disease and public health hazards;

2. Support actions to reduce health inequalities and improve public health;[110]

3. Improve health through the delivery of health and care services that are sustainable;

4. Ensure the public health system retains and develops the capability to tackle current and future public health challenges.

The Public Health Institutes of the World has recognised PHE as demonstrating global best practice in change management and the delivery of essential public health functions (especially in the context of reductions in funding and an increasingly complex policy landscape at both national and local level)[106]. The transfer of public health functions into local government (in 2013) has generally been seen as a positive development in improving abilities to tackle the social determinants of health within a locality.

Much of the work carried out by public health relates to tackling health inequalities and the social gradient in health. This concept ***"demands that we improve conditions, and hence health, for everyone below the top"*** and that ***"not only do we need to reduce poverty, we need to improve society and have effort proportional to need."*** Here, the notion of 'health inequalities' refers to ***"those systematic inequalities in health between social groups that are judged to be avoidable by reasonable means."*** [107]

Ultimately the question that much of the work carried out by public health looks to address is one posed by Marmot118, who argues ***"why treat people and then send them back to the conditions that made them sick?"*** [107]

Marmot notes:[107]

"The default position of British social policy is to target interventions on the worst off.

It seems to make sense.

Why spend money on those who don't need it? The problem with such common sense is that it ignores the gradient.

All the social and related health problems that we see follow a social gradient.

The disadvantage of focusing on the worst off is that you miss those, say, in the middle who have worse health than those at the top, albeit better than those beneath them on the ladder ... Proportionate universalism is an attempt to marry the obvious need to work hardest on behalf of those in greatest need while preserving the universalist nature of social interventions ... we should want everyone to gain the benefits of universal policies while putting in effort proportionate to need."

This view also recognises that our health is affected by factors that are[108]:

- Individual (demographic characteristics, behaviours, socioeconomic status);
- Contextual (economic, social, physical and political characteristics of the place where you live)
- Political-economic (the structures and values of the wider political and economic system).

The Public Health Outcomes Framework (PHOF) for England was established by PHE in 2013. This framework sets out a range of indicators to track progress on delivering relevant high-level public health outcomes, helping to increase quality of life and address health inequalities. Both fuel poverty and EWDs are specifically included as indicators in the PHOF[109].

The indicators are:

1.1 Children in Poverty
1.3 Pupil Absence Rate
1.9 Sickness Absence Rate
1.17 Fuel Poverty
1.18 Social Isolation
2.11 Diet
2.23 Self-reported well-being
2.24 Falls/injuries in over 65s
3.3 Population vaccination coverage
3.6 Public Sector Organisations with Sustainable Development Management Plans
3.7 Public Health incident plans
4.4 <75 Cardiovascular mortality
4.7 <75 Respiratory mortality
4.8 Mortality from communicable disease
4.11 Emergency readmissions
4.13 Health-related quality of life for older people
4.14 Hip fractures in older people
4.15 Excess Winter Deaths

In its Cold Weather Plan for England, PHE also states that ***"there is a strong evidence base showing that cold homes have a negative impact on health and wellbeing"*** and that ***"housing and economic factors are key to cold weather vulnerability."*** The plan recognises that, although emergency measures and actions are an important public health response to extreme cold weather events, the emphasis should shift to year-round planning. It is argued this is more likely to have a greater impact on preventing excess winter mortality, morbidity and health sector winter pressures and should be delivered by multiple agencies at a local level.[118, 143]

Public Health England has also published a list of preventative interventions that can be taken for a given list of conditions, with the aim of improving population health and reducing health service demand in the short and medium term. As such they contribute to the implementation of Sustainability and Transformation Plans (STPs). However, the recommended preventative actions do not specifically reference any housing-based preventative intervention work[11]. In addition, whilst place-based planning will inevitably feature local variation, there is as yet no system in place to benchmark local area performance or hold areas demonstrating variations in performance to account within public health[12]. There are however clear imperatives for addressing cold homes, fuel poverty and excess winter deaths as public health issues via PHE and the PHOF. Public health involvement, therefore, offers an opportunity to deliver interventions to vulnerable groups suffering from cold-related ill health.

2.11 Health and Wellbeing Boards

Health and Wellbeing Boards (HWBs) were established by the 2012 Health and Social Care Act, and offer another opportunity for encouraging cross-sector integration.

They are charged with producing Joint Strategic Needs Assessments (JSNAs) and Joint Health and Wellbeing Strategies (JHWBs) in order to understand the major health inequalities and problems within their local populations. HWBs are expected to bring together partnerships between the NHS, public health, adult social care, children's services and other local authority departments.

Again, the aim of doing so is to bring about and support improvements to the health and wellbeing of local populations and to reduce health inequalities.

Whilst HWBs must produce a joint health and wellbeing strategy, they have no powers to enforce their implementation. As such, ***"their authority does not lie in having executive powers but in their capacity to influence others through the persuasiveness of their arguments and success in building sound relationships."*** [112]

In addition, there is some opinion which suggest that overall ***"the majority of HWBs have yet to position themselves as the key strategic forum for driving the health and wellbeing agenda."*** [112]

However, there is still an acknowledgement that they may be able to reduce ***"the fragmentation that threatens in many places [by] creating the conditions in which discussions can take place between councils, CCGs and service providers on the future shape of local health and social care systems."*** [112]

In relation to the specific actions to address the health impacts of cold homes and excess winter mortality, research carried out by NEA in 2016[113] found:

- Data collected from all HWBs indicated that an engaged and supportive HWB (with the appropriate membership) can be important in driving strategic local action on cold homes.
- 90% of JSNAs mentioned fuel poverty and 74% referenced EWDs; fewer, 38% prioritised fuel poverty in their HWB strategies.
- 36% mentioned the need to act on relevant guidance produced by NICE to tackle cold homes (referenced below) and only 7% directly reference the NICE NG6 guidance in either their HWB strategy or JSNA.
- Nearly one-fifth of HWBs were highly detailing significant action and initiatives to tackle cold homes.

2.12 NHS

Published in 2014, the NHS Five Year Forward View argues that if we are to meet the changing health needs of the population, the NHS needs to change the way it delivers its services to focus more on prevention and service integration. It states that: ***"if the nation fails to get serious about prevention then recent progress in healthy life expectancies will stall, health inequalities will widen, and our ability to fund beneficial new treatments will be crowded-out by the need to spend billions of pounds on wholly avoidable illness."*** This vision was to be based on local leadership and flexible local solutions, rather than top-down, structural requirements.[114]

In the first two years of the Forward View, new models of care were piloted in fifty 'vanguard' sites, and local areas have been asked to produce Sustainability and Transformation Plans (STPS) to outline their plans for transforming their services (within the limits of available funding)[115]. STPs have since become the main mechanism through which place-based, integrated service planning is set out. In some areas, devolution has enabled successful transformations in place-based and integrated commissioning to begin, such as in Greater Manchester[116]. Here, a £6 billion funding pot has been established for spending on health and social care within Greater Manchester, which has been agreed by 37 statutory organisations working across health and social care in the area.[114, 116, 117]

There are 44 STP areas in England which have been developed by CCGs, NHS trusts or foundation trusts and some local authorities. STPs need to account for all NHS spending, and set out how they will improve quality and efficiency of services, health and wellbeing, and develop new care models through further integration with social care (and other local authority departments). This represents ***"a shift in the way that the NHS in England plans its services."*** [118]

While the Health and Social Care Act 2012 sought to strengthen the role of competition within the health system, NHS organisations are now being told to collaborate rather than compete to respond to the challenges facing their local services. This new approach is being called 'place-based planning.' However, the Kings Fund argues that there remains afocus on internal organisational performance within the NHS and that this can present challenges for encouraging the development of local partnerships [118]. In addition, concerns have been raised that STPs are acting as drivers for further privatisation within the NHS through their focus on establishing partnerships with private partners. As such, they have encountered strong opposition in some areas.

Learnings from the vanguard sites[115] have:

1. **Emphasised the importance of being able to describe and communicate the local case for change to diverse audiences – this includes being able to tell a story and to provide robust evidence of improvement.**

2. **Found that outcomes measurement can be improved through the introduction of payment systems that are based on population need and on encouraging wellbeing, rather than focusing on treatments that are disease-specific.**

3. **Identified an approach to health care by grounding it in the needs of a population, and in using risk stratification tools to identify groups within the population in most need of health, as a key learning**

2.13 Clinical Commissioning Groups (CCGs)

CCGs are also expected to follow a set of outcomes indicators published by NHS England in their Outcomes Framework and which fall under domains such as:

1. Preventing premature mortality
2. Improving quality of life for those living with long-term health conditions
3. Supporting patient recovery
4. Making sure that the patient experience of care is a positive one
5. Patients are treated in a safe environment protecting them from avoidable harm.

Indicators included within these domains are relevant to cold-related ill health and cover specific illness such as:

- Respiratory disease
- Cardiovascular conditions
- Mental health
- Emergency admissions and re-admissions
- Inability to work
- Limiting illness
- Life expectancy
- Avoidable mortality rates.[119]

2.14 Social prescribing

The Social Value Act (2013) places an obligation upon public service commissioners to consider the wider social, economic and environmental benefits of their services. Recent research has found that whilst some CCGs have taken actions to implement these requirements into their current practice, the contributions of community groups and wider organisations to deliver these outcomes, is still mixed[120]. Nevertheless, a review commissioned by the Department of Health and Social Care (DHSC), PHE and NHS England in 2014[121] argued that:

- The voluntary, charitable and social enterprise (VCSE) sector needs to become a central part of collaborative processes, and should be considered more in the Joint Strategic Needs Assessments (JSNAs) produced by Health and Wellbeing Boards.

- The DHSC should consider including this in the next update to the Statutory Guidance on JSNAs and Joint Health and Wellbeing Strategies.

- It reiterates support for the embedding of social value in NHS commissioning and services, and argues that more support and guidance is needed from DHSC and NICE around social prescribing.

In recent years, the notion of social prescribing has also become an increasingly salient issue in terms of the opportunity it presents for health and social care to achieve outcomes for patients by referring into services offered by the voluntary and community sector. The main reason given for this is that independent advisors are able to work with medical professionals to identify the needs of patients for support, and refer them on to appropriate voluntary or community services that are available in the local area.[122, 123, 124]

Social prescribingalso affords the possibility of reducing demand on primary, secondary and social care by addressing the social determinants of health and improving patient wellbeing[124] and arguably represents an example of how health sector commissioners, including CCGs, can

demonstrate compliance with obligations of the Social Value Act (2013).

This in turn has given rise to a new idea of social prescribing 'plus', which refers to services that:

- Cover geographic areas that would be coterminous with the local authority or CCG boundaries.
- Have multiple referral pathways from a variety of practitioners in primary, secondary, social and mental health care services.
- A wide range of social prescribing services are available and these are adequately funded to ensure patient demand can be met.
- Commissioners have a strong understanding of service users' needs and will have mapped these against the availability of services and activities locally.
- Gaps in provision are resourced to build the capacity and capabilities necessary for meeting needs.
- Significant long-term investment of strategic funds across multiple service areas.

Where social prescribing 'plus' has been implemented, it has been shown to be successful in achieving health and wellbeing outcomes for patients outside of a primary and secondary care setting:

- Evaluation of the Rotherham Social Prescribing Mental Health Service, for example, found a positive return on investment of between £0.79 and £1.84 for every pound invested in the programme, depending on the services used.
- More than 90% of service users had made progress against at least one outcome measurement for wellbeing, and over half of service users that were eligible for a discharge review from secondary mental health services had been discharged.[124]

Importantly, moves towards such models represent a shift away from deficit-based approaches to health care (health professionals seeking to 'solve' the health problems of patients) to asset-based approaches (which encourage the development of mechanisms to support good health and wellbeing). Whilst in some areas this has become a significant policy agenda with services being commissioned as part of area-level integration/ transformation programmes for health and social care, there remains a considerable difference in implementation across the UK.[122]

Local variation appears to occur according to level and source of funding, the model of commissioning, the targeting and identification of service users, geographic coverage, referral sourceand the breadth of 'prescribed' activities[122]. Generally, those areas that are funding social prescribing through mainstream health and social care budgets are doing so through the Better Care Fund or Transformation Challenge Awards from central government. Others have resourced prescribing mechanism through grants from third sector organisations or through social impact bonds.

2.15 NICE

The National Institute for Health and Care Excellence (NICE) looks to improve patient outcomes by producing guidance and advice for health, public health and social care practitioners that is evidence-based. It also develops relevant quality standards and performance metrics alongside guidance to be used by those providing and commissioning services for health, public health or social care.

NICE guidance applies officially only in England; decisions on how to apply guidance elsewhere in the UK are made by devolved administrations. Crucially for this report's perspective, in 2015, the NICE NG6[125] guideline was published. This set out 12 recommendations for addressing excess winter deaths and the health risks of living in a cold home.

These are:

RECOMMENDATION	WHO SHOULD TAKE ACTION
Develop a strategy to address the health consequences of cold homes	Health and wellbeing boards
Ensure there is a **single point of contact** health and housing **referral service** for people living in cold homes	Health and wellbeing boards
Provide tailored solutions via the single point of contact health and housing referral service for people living in cold homes	Health and wellbeing boards; local authorities; housing providers; energy utility and distribution companies; faith and voluntary sector organisations
Identify people at risk of ill health from living in a cold home	Primary health and home care practitioners
Make every contact count by assessing the heating needs of people who use primary health and home care services	Primary health and home care practitioners
Non-health and social care workers who visit people at home should assess their **heating needs**	People who do not work in health and social care services but who visit people at home (e.g. meter installers, faith and voluntary sector workers, housing professionals etc.)
Discharge vulnerable people from health or social care settings **to a warm home**	Secondary healthcare practitioners; social care practitioners
Train health and social care practitioners to help people whose homes may be too cold	NHS England, universities and other training providers
Train housing professionals and faith and voluntary sector workers to help people whose homes may be too cold	Training providers (e.g. Chartered Institute of Environmental Health, Chartered Institute of Housing etc.)
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; training providers
Raise awareness among practitioners and the public about how to keep warm at home	Health and wellbeing boards; Public Health England; the [former] Department of Energy and Climate Change (N.B. now Department for Business, Energy and Industrial Strategy)
Ensure buildings meet ventilation and other building and trading standards	Building control officers; housing officers; environmental health officers; trading standards officers

The guidance sets out a clear blueprint of how actions at local level can lessen key risks to health and wellbeing for those vulnerable to cold-related ill health. Like PHE, NICE also highlights the need to undertake year-round planning and ensure action on cold homes becomes an integral part of local strategies, including JSNAs, HWBs, and local Cold Weather Plans.

The corresponding NICE Quality Statement (published in 2016) states that plans should include mechanisms through which statutory and non-statutory organisations can work together at a local level (including housing, voluntary and community sectors). This needs to be backed up by adequate data sharing and proactive discharge procedures.[126]

The NG6 guidance offers evidence-based recommendations for cost-effective interventions that can be delivered to address cold-related ill health within a local area, and indicates the level and extent of services that should be offered by relevant local bodies in cooperation with one another.

2.15 Devolved nations

In **Northern Ireland**, the Public Health Agency (PHA) has provided funding for the Northern Exposure project since 2009 (delivering actions to address fuel poverty in Belfast), and the Warmer Ways to Better Health Programme, delivered by district councils.

Whilst the PHA Poverty Priorities 2016-2020 do include links to tackling cold homes, this plan requires further development. In 2016 the Northern Ireland Deputy Chief Medical Officer stated that the Department is formally considering the NICE NG6 guideline for application in Northern Ireland. The Chief Medical Officer has also stated that service delivery and commissioning needs to take the guidance into account.[127]

In **Scotland**, the Public Health Network published guidance for Directors of Public Health in 2016 which sets out public health actions that can be taken to address fuel poverty (and encouraged links to be made between local public health, Community Planning Partnerships and Integrated Joint Boards). The NICE guideline, however, has not been formally adopted in Scotland.[127]

Whilst the NICE guideline has not been adopted in **Wales**, NEST eligibility will be extended from April 2018 to households on low incomes and who suffer from a respiratory or circulatory condition, and a proportion of scheme funding has been ring-fenced to pilot this. The Wellbeing of Future Generations (Wales) Act (2015) states that Local Health Boards (LHBs) should work towards achieving 'a healthier Wales', and Public Service Boards in each local authority area in Wales (established by the Act) should publish an assessment of local wellbeing and their first Local Wellbeing Plans by May 2010.[127]

2.2 Governmental organisations with a responsibility for energy efficiency and fuel poverty

So far, this section has shown that whilst there are issues with the fragmented nature of the evidence base around cold homes and health, to date, current available evidence is and has been sufficient to engender official recognition of the problem by health-related public bodies. In particular, NICE have produced clear guidance on excess winter deaths and the health risks associated with cold homes (NG6) and a corresponding Quality Standard (QS117). This section will now move on to set out the national picture in relation to addressing fuel poverty and energy efficiency. It then briefly investigates the main energy efficiency policy mechanisms that are currently in place nationally or to enable local delivery via non-recurrent funding streams. This section does not aim to set out this context in order to highlight well-defined gaps in national policy but does so to provide necessary context for assessing the conditions by which local commissioning and delivery activities are being undertaken or, more broadly, where cross-sector collaboration is helping to act on the links between health and housing.

2.3 Energy efficiency and fuel poverty: the national picture

National levels of fuel poverty and recent statutory commitments

In 2016, there were around 2.55 million English households in fuel poverty (11.1%), representing a fuel poverty gap of around £832 million[128]. Meanwhile, in Northern Ireland, it is estimated that around 43% of households (294,000) were in fuel poverty in 2011 – the most recent year for which statistics are available.[129]

The number of Scottish households living in fuel poverty in 2015 was estimated at 748,000 (around 31%), and in Wales the proportion of fuel-poor households was at estimated to be around 23% in 2016 (291,000).[127]

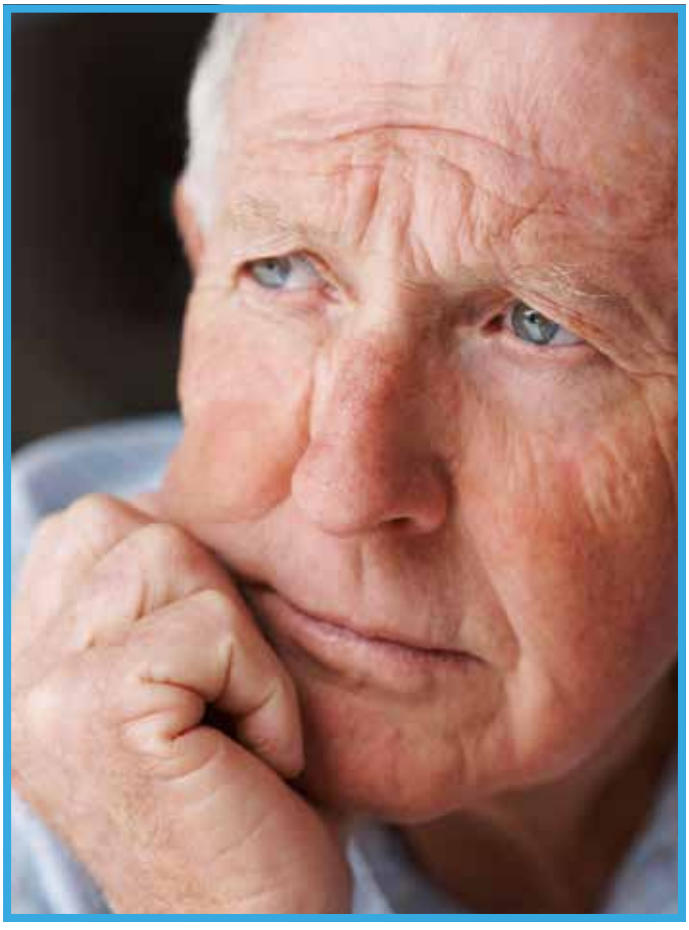
The energy efficiency-based Fuel Poverty (England) Regulations 2014 are a legal requirement the UK Government is still bound by[130]. These commitments were also reaffirmed in both the Conservative Manifesto[131] and the Clean Growth Strategy.[132]

As a result, the UK Government is still dedicated to ensuring all fuel poor homes in England achieve a minimum energy efficiency rating of Band C by 31 December 2030 - broadly the same energy efficiency performance as a modern home. Beyond ending the individual suffering caused by fuel poverty, the Clean Growth Strategy and the recent consultation to amend the Energy Efficiency (Private Rented Property) (England and Wales) Regulations 2015 which aim to improve conditions in the worst of the Private Rented Sector (PRS), recognises delivering energy efficiency-based targets will contribute towards achieving other UK Government objectives; a successful industrial strategy[133], supporting small business growth in every region and achieving carbon emissions reductions.[134]

The Government have also often noted that delivering these targets will also help improve local air quality[135], reduce health and social care costs[136] and provide real benefits to households who are struggling financially[137].

It has been estimated that, in order to meet this target, an investment of circa £20bn is required[129]. Apart from the recent £150 million Warm Homes Fund provided by National Grid Affordable Warmth Solutions, the only national funding aimed at addressing fuel poverty/energy efficiency in England is the Energy Company Obligation (ECO), which also operates across Great Britain. This follows the end of the Green Deal and the Landlord Energy Saving Allowance, and leaves a "policy gap" within England which has been recognised by many official commentators, most notably the Committee on Fuel Poverty (CFP) and the Committee on Climate Change (CCC).[129, 134]

It has been estimated by the latter that recent policy changes may have resulted in a 53% reduction in annual investment and an 80% reduction in the number of energy efficiency measures installed in 2012-2015. The current phase of the ECO scheme however has seen a slight increase in available funds compared to the transition phase, and these funds are now entirely targeted at affordable warmth element. One of the most pressing gaps for housing and health schemes is the limited level of support available for heating repairs and replacements.



A broken or unsafe gas appliance is also likely to prompt the use of secondary heating appliances. Alongside poor ventilation, use of combustion room heaters such as LPG and solid fuel fires can significantly increase carbon monoxide (CO) exposure risk. Whilst the introduction of an ECO flexible eligibility mechanism does offer an opportunity for local authorities to assist some vulnerable households who would otherwise have been ineligible for help, there are currently no Government-funded energy efficiency programmes in England; a situation that is unique among the four nations of the UK. [127, 129]

Local authorities

The Home Energy Conservation Act of 1995 (HECA) placed a duty on local authorities with housing responsibilities to produce strategies for improving energy efficiency in all housing tenures and to report on their progress with ongoing strategy implementation.

- The intention was to encourage actions that could address both fuel poverty and climate change.[140]
- The former Department of Energy and Climate Change required all relevant English authorities to submit a report setting out the energy conservation measures that they considered practicable and cost-effective for their local areas.
- The last year for which progress reports were required was 2017 and thereafter by 31 March 2019 up to 31 March 2027.[138]

The 2004 Housing Act introduced measures for ensuring minimum standards in housing. These included the Housing Health and Safety Rating System (HHSRS) and the requirement for the licensing of Houses in Multiple Occupation (HMOs).

- The HHSRS lists 29 hazards, with the most severe being classified as Category 1 hazards. Excess cold is included within the list of Category 1 hazards.
- Local authorities have a duty to inspect properties suspected of containing Category 1 or 2 hazards, and they are obliged to take appropriate action in relation to Category 1 hazards.
- Whilst landlords and owners must pay for the cost of any measures or actions taken, local authorities can make reasonable charges to recover expenses incurred when serving an improvement notice or taking emergency remedial actions.
- Often authorities will attempt to resolve issues informally (providing clear explanations of likely enforcement actions and steps required to implement them) to give owners the chance to resolve issues before a formal enforcement notice is issued.[139]
- Barriers to improving properties with excess cold under the HHSRS include the heavy burden of licensing HMOs and limited resources within local authorities.

Devolved nations

- In Northern Ireland, the Affordable Warmth Scheme is a statutory area-based programme (introduced in 2014) which is thought to be improving the energy efficiency of around 500 fuel-poor households annually (though the previous Warm Homes Scheme was thought to help up to 9,000 each year). Changes to the programme mean stricter income-based eligibility criteria and a whole-house approach is being taken. For households not eligible for the Affordable Warmth Scheme there is the Northern Ireland Sustainable Energy Programme (NISEP), which is funded by a customer-based levy.[127]

- Scotland designated energy efficiency as a National Infrastructure Priority in 2015, and is set to roll out Scotland's Energy Efficiency Programme (SEEP) over a 15-20 year period from 2018 (with a promised £500 million of public funding over the first four years). 'Pathfinder Funds' are currently delivering pilot projects in high fuel poverty risk areas in order to inform wider delivery of the programme. In the meantime, the Scottish Government is funding the Home Energy Efficiency Programme for Scotland (HEEPS), which provides a mixture of area-based schemes, a reactive funding scheme for individuals, and loan schemes.[127]

- The Welsh Government is similarly delivering its Warm Homes Programme, with £26 million in funding committed until 2021, and an estimated 25,000 households expected to receive assistance. Energy efficiency improvements are additionally delivered to households through NEST (targeted at eligible privately owned and privately rented properties), which is due to incorporate low-income groups with respiratory or circulatory conditions into its eligibility criteria in 2018. The area-based scheme 'Arbed' also delivers energy efficiency measures to low-income communities.[127]

Non-recurrent national funding and pressure on local budgets

The Warm Homes Healthy People Fund (WHHP) operated between 2011-12 and 2012-13 with the aim of supporting local authorities and partner organisations to reduce the health impacts of cold homes in England. The successful programme saw many areas pilot new ways of reducing excess winter illness, and the establishment of a number of local partnerships. Some areas were able to continue their delivery following the closure of the Fund by bidding into the then ring-fenced local public health budgets. Evaluation of the project found that a greater emphasis on sustainable and long-term funding sources, which would allow for a year-round approach to planning and commissioning to be taken was required.[110]

More recently, there have been significant moves to integrate health and social care at a local level in order to improve patient outcomes. This has involved the creation of the Better Care Fund, which requires local health bodies and local authorities within a health and wellbeing board catchment area to pool existing funding and to develop service integration plans. The idea is to enable adult social care to support the health sector by reducing hospital pressures, reducing emergency admissions and re-admissions and reducing delayed transfers of care.[141, 142]

effectively to deliver such actions, it has been noted that delivery under the Fund has been deeply flawed to date. The National Audit Office concluded that a key assumption of the Fund, that funding could be transferred from the health sector to social care without adverse impact on the NHS, has proved not to be the case because the health service itself is under financial pressure.

The House of Commons Committee of Public Accounts (2017) also concluded that whilst the Better Care Fund did increase available health and social care funding for local authorities in 2015-16 for example, this was mainly used to plug gaps created by cuts to local authority budgets in a context of rising demands for care.[141]

Between 2010-11 and 2015-16, local authorities in England reduced their spending on adult social care by 10% in real terms, whilst NHS spending increased by 11%. At the same time, NHS trusts and Foundation Trusts saw a deficit of £2,447 million in 2015-16. Similarly, local authorities face a funding gap of £5.8 billion by 2020, with £1.3 billion of this relating to social care. In 2015. The King's Fund noted the need to establish a single combined spending review process and settlement for the NHS, social care and public health and secure adequate sustainable funding of both health and social care that will face a combined funding gap of at least £12billion by 2020. The parameters of this would need to be defined, but the Kings Fund argues that at a minimum it should include most local authorities' commissioning budgets for adult social care and a significant proportion of CCGs' budgets for acute, community and mental health services.

In the 2017 autumn budget, an additional £1.9 billion was provided for planned health spending in the acute sector (half the amount necessary to fill the funding gap). There was no further funding announced for public health or social care (which faces an estimated funding gap of £2.5 billion by 2019-20). Between 2016/17 and 2018/19, £5.4 billion of the £7.9 billion funding available in the Sustainability Transformation Fund will also go towards offsetting hospital deficits. It has been argued that working across departments (at a local and national level) would enable the multiple benefits of energy efficiency (including those in relation to reducing cold-related ill health) to be realised.[118, 141, 143]

SECTION 3: BUILDING AN UNDERSTANDING OF THE NATURE OF LOCAL DELIVERY

3.1 Identification and replication of good practice

If a more widespread implementation and replication of good practice is to happen across the energy, housing and health sectors, it is important to both identify the mechanisms through which engagement has successfully taken place locally, and understand the reasons why (and how) local health and public health teams have supported actions to tackle cold homes. Recognising that localities and contexts vary, there are certainly learnings around what other areas are doing that can be implemented elsewhere. There are existing toolkits available which have been designed to enable local authorities and other organisations to successfully engage health sector and health-related bodies.[144]

A catalogue of health-related fuel poverty schemes in Scotland provides useful insights into project-specific challenges and successes in working with and engaging different parts of the health sector. It also gives insights into particular methods used by some schemes for evaluation[145]. The research published by Lewisham Council and the toolkits that have been produced by the Centre for Sustainable Energy and by Cornwall Council and Citizens Advice share best practice case studies from existing schemes and give specific guidance around how schemes might look to engage different parts of the health sector and what kinds of evaluation methods they might use to produce evidence that will support this engagement.t [146, 147]

The remaining chapters of this report highlight the data collected in order to identify a number of schemes that have been able to successfully engage either the health sector or health-related bodies and gain an understanding both as to how such engagement was secured, and why those bodies decided to provide their support.

Crucially, the understanding of this current status of delivery 'on the ground' has been developed through three primary research phases. Between 22nd September and 10th October 2017, NEA issued a call for evidence to scheme providers across the UK that are either entirely or in part deliberately targeting households containing someone with a health condition or disability or which are either entirely or partly funded by a health-related body (or health funding has been sought).

The survey was disseminated to around 400 contacts working in fuel poverty or health-related fields. This included all local authority heads of housing and environmental health, Directors of Public Health, and CCG leads. In total, 68 responses were received, representing a 17% response rate. Respondents represented 6 different sectors:

- **1%** were from a health and social care body;
- **46%** were from a local authority;
- **41%** were from a charity/not for profit organisation;
- **7%** worked in the private sector;
- and another **1%** worked for a social housing provider.

Of Local authority responses:

- **39%** were in housing,
- **19%** in environmental health
- **16%** in public health
- **26%** in 'other' areas (namely affordable warmth roles).

In Stage 2 NEA carried out 12 qualitative telephone interviews with local scheme providers and commissioners. Interviewees represented local public health teams, a local CCG, a local NHS organisation and local housing and/or environmental health teams.

These encompassed the case study areas of: Wigan; Leicestershire; Lewisham; Liverpool; Lewes; Oldham; Cornwall; Oxfordshire; University Hospitals of North Midlands (Stoke-on-Trent); Gloucestershire; and Nottingham City.

NEA also carried out three qualitative telephone interviews with key strategic individuals, including representatives from BEIS, Public Health England, NICE and the Buildings and Research Establishment (BRE).

We had hoped the interviews would be supplemented with further discussions with representatives from NHS England but it was not possible to secure their input. Finally, NEA held a series of regional stakeholder workshops in order to present the emerging findings and themes to stakeholders in order to gather feedback and further reflections before producing the final report.

The key results of this primary research are included in this chapter which:

1. Explores the extent to which health-based fuel poverty schemes have been able to secure engagement (financial or otherwise) from the health sector or public health teams.

2. Examines the level and nature of involvement from health-related bodies; and why working with particular bodies has been effective in some areas.

3. Gives examples of health or health-related bodies that have been able to support, or have decided to fund, actions to tackle cold-related ill health (and how).

4. Discusses the kind of evidence that has been required by health sector bodies and public health teams in order for them to provide schemes with support and how such evidence has been collected and presented in different areas.

5. Explores why this kind of evidence is valued by health sector bodies and public health teams and whether there are other local mechanisms that are required before a final decision to commission, fund or support services is typically made.

6. Assesses the reasons why support may be withdrawn or withheld by health sector bodies or public health - even when the evidence itself is accepted.

7. Reviews methods that have been used to evaluate schemes and explores how far these methods align with the interests of particular health-related bodies is assessed.

8. Examines how the priorities of health and public health partners might affect the nature of scheme delivery.

9. Considers possible mechanisms for encouraging more integrated, cross-sector actions in the future.

Throughout the section, we have included a number of 'stakeholder insight boxes' to highlight and detail the experiences of our interview participants or specific information gathered during the evidence review.

3.2 Level and nature of involvement from health-related bodies in schemes to address cold-related ill health

Health-related bodies that are helping to implement or fund schemes

Scheme providers surveyed were asked to indicate the level and nature of involvement from health-related bodies or healthcare professionals in the implementation and/or funding of their schemes.

Results suggest thatlocal public health teams are playing the greatest role when it comes to local health-related bodies commissioning and funding initiatives to tackle cold-related ill health (see Chart 1).

- Local public health teams were commissioning services for **23.1%** of schemes surveyed
- CCGs had commissioned **7.7%**
- Health and wellbeing boards had commissioned **2.6%**
- Local public health teams were contributing funding for **20.5%** of schemes
- CCGs were funding **7.7%**
- The NHS was funding **2.6%**

A greater number of schemes had engagement from health-related bodies in terms of identifying households or generating referrals[vii]:

- **46.2%** had engagement from GPs to identify and refer patients
- **41%** had engagement from district nurses
- **38.5%** had engaged practice nurses
- **23.1%** were working with pharmacists

Despite the low level of HWB commissioning activity identified, in some areas like North Yorkshire[viii] health and wellbeing boards did emerge as key enablers of action.

In North Yorkshire, best practice evidence submitted to NICE described how the board had precipitated the implementation of the NG6 guideline:

"The information and intelligence presented in the Joint Strategic Needs Assessment (JSNA) about EWDs, Fuel Poverty and Influenza Immunisation rates were cause for concern for the Health and Wellbeing Board, particularly the variations across districts and Clinical Commissioning Group (CCG) boundaries. This variation became an impetus for action… the North Yorkshire Health and Wellbeing Board initiated the implementation of the NICE guideline NG6 by supporting the need for coordinated action across the area in order to tackle the issues impacting on the population each winter … The Winter Health Strategy was coordinated, produced and launched by the multi-agency strategic Partnership, and funded and facilitated by the public health grant."

vii Due to respondents selecting multiple answers, the percentages presented are greater than 100%

viii

Health and Wellbeing Boards appeared in the research as forums where evidence of local need could be presented, and it was clear in some cases that having support from a Health and Wellbeing Board could help to engage local commissioners. However, the extent to which this resulted in concrete, cross-sector actionsvaried between localities.

In Wigan, we were told by one public health practioner that although the HWB was supportive and interested in the issues, they had not proactively taken actions to encourage intervention delivery.

"We have certainly taken papers to the Health and Wellbeing Board and they've been positive in hearing those papers. Sometimes members have got a particular interest in a specific local area and have asked for more detail on why certain groups or areas are affected."

In Cornwall, the role that the HWB could play was strengthened by the make-up of the board itself, and that public health took a leading role with it.

Public health now runs our HWB, so we've always had support from them. The chair of it always supports our Winter Wellness Programme. Fortunately, the Chair of our Health and Wellbeing Board is also now the Leader of our council so we have much bigger backing for what we do in terms of the local authority."

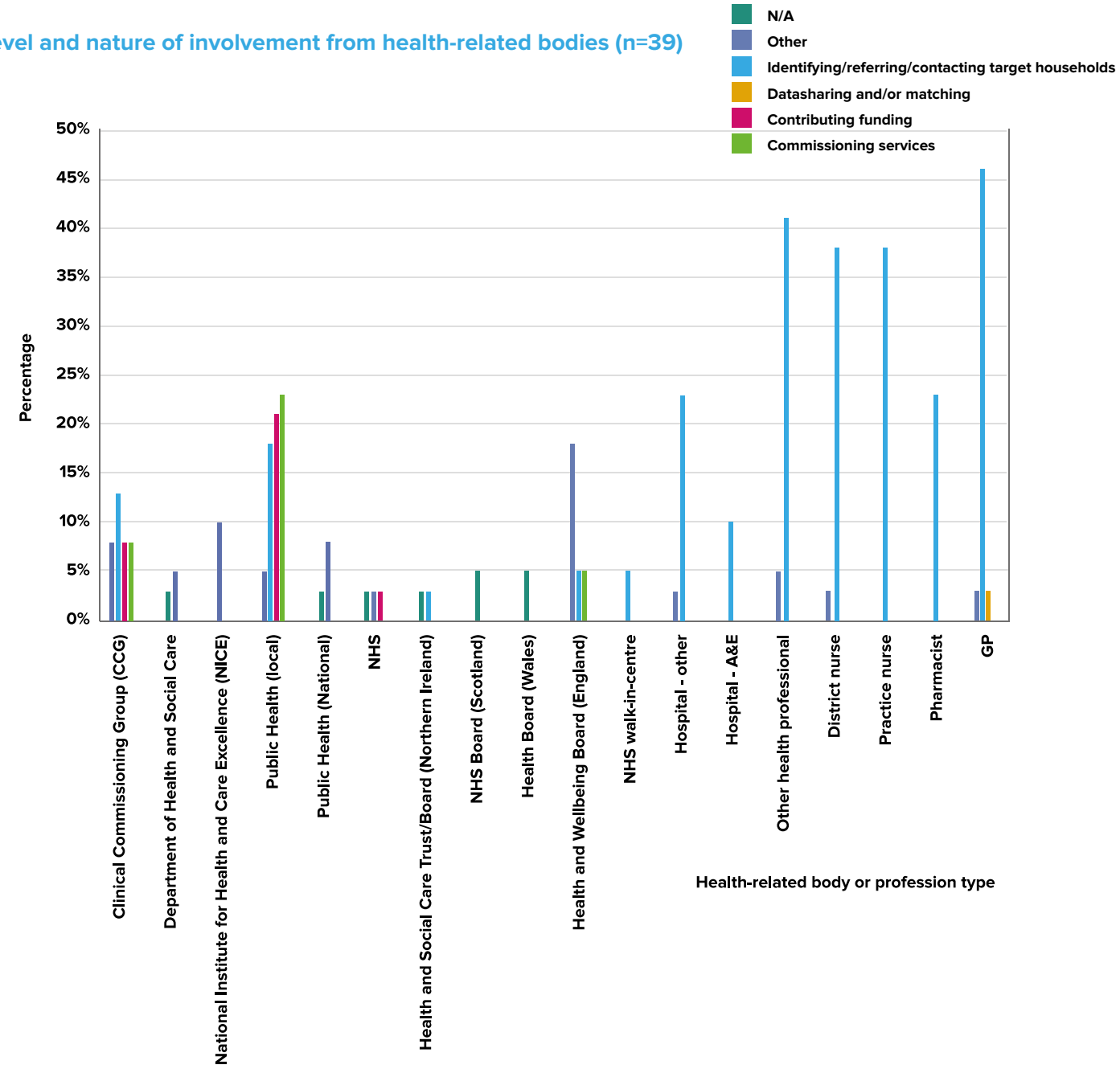
Whilst HWBs could be effective local mechanisms through which multiple partners could be brought together and strategic actions coordinated, results suggest that they were not always the most proactive bodies through which concrete actions could be taken; a lot depended on the leadership and membership of an individual HWB.

NICE indicated that, whilst having the support of a HWB is positive, there may be other key local actors that are more likely to engage on the issue (such as local public health teams).

"Having the support of the Health and Wellbeing Board is a good thing, but the roles and effectiveness of the HWBs vary quite significantly. The primary driver for uptake of the [NG6] guidance was on the statutory side of things - local authorities and public health teams themselves. The way NICE guidance is put together tends to speak to their professional background and, as far as this particular guideline is concerned, it is a classic public health topic. Local government obviously sees housing as a key local authority area of responsibility too, so the guidance cuts across those teams."

The emphasis placed by NICE on the potential of public health teams to engage with and push implementation of NICE NG6 alongside other local authority departments was reflected in our interviews with PHE representatives.

Chart 1: Level and nature of involvement from health bodies or healthcare professionals in helping implement and/or fund scheme



From their perspective, the way fuel poverty is tackled at local level depends on local priorities, and the role of public health locally was seen as being to advocate, support and enable actions by bringing different agencies and players together.

"I think it's a matter of local prioroties. Public health are certainly there to strongly advocate and the social determinants of health on the agenda. They make sure housing, planning and the other areas of local government are addressing this and understanding their role in keeping people healthy and preventing illness. That's the whole reasoning behind public health moving into local authorities. It's not about them being the deliverers themselves but by working in partnership with others for population health gain."

This was further set out in their reflections on how public health could bring NHS practioners on board as a result of their understanding of a complex system and relationships with the health sector.

”The other key players, and this is completeley outlined in the cold weather plan, are NHS professionals. One of the things that local public health colleagues can do is help facilitate and be the oil in the local wheels across different agencies, and help make it easier for an NHS professional to know how and where to refer a patient for help. It doesn’t require vast amounts of money but it requires initiave, drive and an understanding of a complex system.”

Our PHE interviewees felt that the role of CCGs was to bring together the NHS perspective on dealing with cold weather and the impacts of living in a cold home so that it can feed into wider strategic planning at a local level, rather than funding those initiatives themselves. Importantly, the Health and Wellbeing Board was seen as having a role in bringing local strategic objectives together into a single, coherent plan.

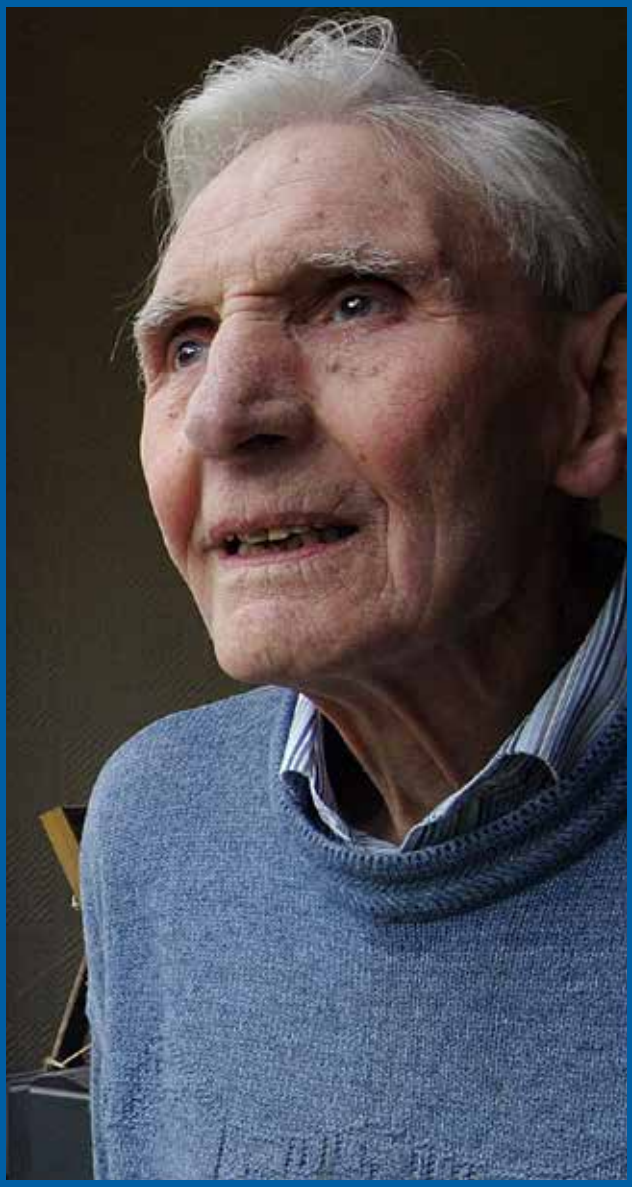
“It’s about understanding the level of health and need in that population and working with other to commit services to meet that need”

“The role of the CCGs goes back to overall commissioning in the sense of bringing together the view of all NHS professionals on how we’re going to deal with cold weather to the forum that should be developing the strategy for cold weather and fuel poverty at a local lecel [the Health and Wellbeing Board].”

Ultimately, they emphasised that the role of public health was in being able to understand local needs and priorities, and to encourage appropriate, multi-agency actions to address them.

Areas like Oldham recognised the benefits that having senior-level buy-in from public health could have for a scheme.

“The Director of Public Health is the Chair of the Warm Homes project Board, and has always been supportive of actions to address the wider determinants of health. He has been the driver of a lot of the work in terms of getting the message out there, supporting it financially, and getting buy-in at a senior level.”



This was reflected in the commens provided by Wigan AWARM, whereby the Director of Public Health was able to make links with the CCG, NHS, and within other areas of the council to make sure the scheme had the opportunity to present their business case.

"We had strong support from the Director of Public Health, who really got fuel poverts and the effect it had on health and wellbeing. She got us the air time to make the case with the CCG, NHS and within the council more widely. It's handy having such a senior manager helping you navigate all those different bodies and getting influence and air time with them."

The ability of public health teams to bring multiple agencies together locally was a recurrent theme in our interviews with local public health practitioners themselves.

In Leicestershire, having formal mechanisms in place that require a relationship between public health and the CCG is an important enabler for discussions to take place. Whilst securing engagement can be difficult, having CCG members who sit on the steering groups of public health initiatives, and who show goodwill in terms of promoting messages to their commissioned health professionals, has been a positive aspect of joined-up work in the locality.

"We have a number of different routes into the CCG. Public health has a statutory duty to provide advice and support to the CCG, and two of our consultants are board members of our two CCGs. So, at very senior level, we've got mechanisms to get messages into the CCG. At a more operational level, we have links in different topic areas to different CCG members, who also sit on the boards of projects with a public health focus. So that's another way of making the case for the relationship between housing and poor health. Having said that, it's still often a battle: they've got no money either and they have a whole set of targets. Housing and fuel poverty don't appear very high on their agendas. But, we do try and make the case and we do get goodwill and enthusiasm from them. They're good at getting messages out there amongst health professionals. As a result of that, we have managed to train thousands of frontline health and social care staff in energy awareness."

Discussions with local public health practitioners revealed an understanding of the complexity of engaging and working with NHS staff.

This was reflected in Wigan, where local public health had been able to maintain positive relationships with their local CCG after moving from the Primary Care Trust (PCT) into the local authority (during which they co-located into the same building).

This historical relationship between the two organisations was helpful when public health attempted to engage the CCG on the issue of cold-related ill health.

But, it wasn't only the positive public health-CCG relationship that had enabled the housing and public health teams in Wigan to secure CCG funding and support.

Senior management within the CCG had embraced the drive for more integrated working across health and social care, and agreed to provide joint funding alongside the local authority for preventative health actions. It was felt that a combination of factors had been at play in securing funding for a fuel poverty initiative.

"It was a mixture of historic relationships, effective negotiation, providing the evidence base and really focusing on the range of different potential benefits using data sources provided by both public health and CCG analysts."

In Cornwall, this understanding had combined with the persistence of local public health to ensure health practitioners could be continuously and repeatedly engaged on the issue, and that the issue could become embedded more strategically within those organisations.

"It all depends which allied professional gets it and which ones are willing to work with us and try and promote it. It's a case of dropping it into the relevant documents to make the health professional think about it and to embed it in their activity. That does take a long time. Then, when you have turnover, you have to start all over again. We just have to be persistent and consistent and keep offering that service. It's important not to get too frustrated that the whole NHS doesn't do it, but pick up on bits of good practice and then keep pushing those bits of good practice to make it become normal activity."

Importantly, Cornwall acts as an example of where a local public health team has been able to capitalise and build on changes happening within the NHS through Sustainability and Transformation planning to help embed training of health professionals and referrals relating to fuel poverty and winter wellness into relevant local strategies that involve the NHS.

Hence there is interplay between the opportunities afforded by new policies aimed at encouraging integration and a focus on health-prevention, and the actions of local teams who are well placed to encourage strategic actions in this area.

The examples of Cornwall and Wigan show how effective local public health teams can be in engaging health-sector bodies, like the NHS and local CCGs - especially when appropriate mechanisms or policy levers, such as the NHS Five Year Forward View, are in place to encourage an acknowledgement of the desirability of working together to achieve health-based prevention outcomes.

In summary, the responses revealed the possibilities for coordinated local action that can arise from having a Health and Wellbeing board or local public health team that are engaged on the issue of cold-related ill health and fuel poverty. They also underlined the importance of having an engaged local public health team that can act as broker, coordinator or funder was apparent throughout. Where appropriate relationships are in place locally, and national policy levers are able to encourage and emphasise a focus on health-prevention and integration, there is potential for CCGs, HWBs and NHS bodies to be engaged on the issue.

Funding sources for schemes

The next part of this section explores funding sources for schemes. Beyond funding, the results also help evaluate what other key drivers there are for related action.

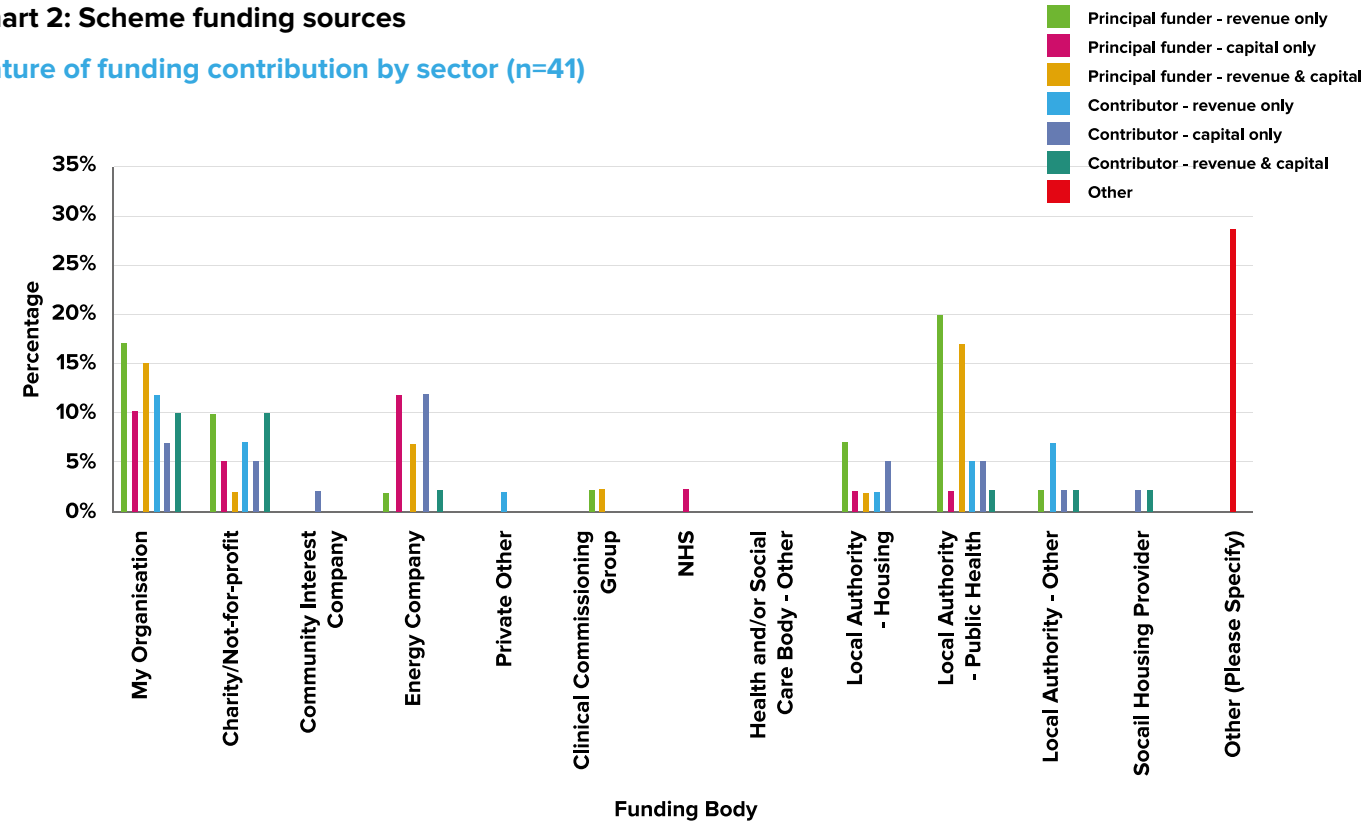
Results indicate that, among schemes surveyed, public health was by far the biggest principal and contributing funder of both **capital** (17% of schemes) and **revenue** (20% of schemes) costs. Contributions from CCGs or the NHS fell far below this. For example, the NHS and CCGs were principal **capital** funders for just 2.4% of schemes surveyed respectively. CCGs were also a principal **revenue** funder for just 2.4% of schemes.

Other principal and contributing sources of funding were the scheme providers themselves, particularly for **revenue** funding. Not-for-profit organisations and energy suppliers funded or contributed to **capital** costs in the main.

Interviews with practitioners, commissioners and funders revealed the extent and nature of services that can be delivered tends to reflect the availability of funding locally, as well as how funding relationships with different health or health-related bodies had come about.

Chart 2: Scheme funding sources

Nature of funding contribution by sector (n=41)



CCGs – integrating a focus on prevention

Despite CCGs not being identified in the call for evidence as playing a major role in providing funding for schemes, the findings did identify a number of case studies where this had been the case.

Gloucestershire CCG has been involved in the commissioning and funding of local, health-based fuel poverty actions. Here, additional monies available through the uplift associated with Disabled Facilities Grants (DFG) as part of the Better Care Fund (BCF) were identified within a two-tier authority area as being available to drive health and care improvements in the county. Since the six Borough and District Councils were passive recipients of DFG referrals, and spending for the previous 5 years had been fairly static, it was decided that the £3 million available through those funds could be used by the CCG to do something "exciting" without actually reducing any of the services or monies normally provided through the DFG. Although it took 11 months to gain agreement, the withdrawal of public health funding for the local Warm and Well scheme provided a lever to make the case for continuing the service. Importantly, it was linked with new CCG obligations to implement a focus on health prevention.

The push from within the CCG to further support action within Gloucestershire did not stop there. Key CCG priorities that were relevant to addressing cold homes were identified and contributed towards a justification for further funding to be awarded.

"Our housing action plan covered a variety of areas, one of which was refining our DFG processes and centralising it, making it a bit easier for everyone and relaxing some of the constraints within that process. The second thing was appointing people with housing experience into our frontline services, like our discharge teams. The third thing was trying to provide a non-injurious fall pick-up service, which was still clinically triaged. And then we had our fuel poverty strand. So we put in an additional £200,000 into GEEG (Gloucestershire Energy Efficiency) and put additional investment into a Citizens Advice referral pilot. We also put monies into an EU initiative called Build 2 Low Carbon, working with Severn Wye Energy Agency. We have also successfully contributed to a joint Warm Homes Fund bid."

Whilst the key driver pushing such activity was the joint commissioning team across health and social care, they were also able to receive guidance and additional evidence to support their case from Foundations UK, demonstrating the value of local partnerships and the importance of harnessing external expertise and evidence.

"They were really helpful to me. There were times when I was trying to get everyone engaged, when people didn't want to know. Foundations encouraged me to keep going and produced some guidance to make the case for converting capital monies into revenue funding locally, which was a barrier I had encountered."

Similarly, having senior members of CCG staff that understand the importance of preventative actions to tackle the social determinants of health was essential for enabling this work to take place.

"Our Chief Accountable Officer is incredibly wedded to the idea that, if we don't understand the impact of poor housing generally on health, then we're missing a real opportunity to influence it. So, it's been a pleasure to work in a CCG where I've basically been given the flexibility to just grow this."

In **Gloucestershire,** new drivers to integrate a focus on health prevention from within the CCG were propelled into becoming tangible support for concrete actions by the persistence and vision of particularly driven and engaged individuals working from within the CCG and their supportive wider team. They had the benefit of support and buy-in from senior CCG management who understood the need to tackle the social determinants of health, and were given guidance by other agencies as to how they might be able to make their suggestions work on a practical level. The process was lengthy and complicated, but the end result meant that monies through available funding mechanisms (in this case, DFG/BCF managed by the CCG in an area where the CCG boundaries were coterminous with those of its district authorities) could be used to fund initiatives to tackle housing-related determinants of health.

In Oldham, integrated working at a local level fed into a recognition that the benefits of interventions to improve the life circumstances and environments of individuals and families crossed sectors. As such, the solutions offered locally should represent cross-sector initiatives. This innovative perspective had led to the joint commissioning of services between the CCG and local authority.

"It started out because the council was looking into community budgeting work and assessing which sectors get what benefits from interventions, and therefore who should be contributing funding. So it was trying to turn down the traditional approach of the council paying for things and not necessarily getting the end benefit in terms of the cost saving. It was felt that a lot of the benefits and cost savings achieved through fuel poverty interventions accrued within the health sector. It was eventually decided that the CCG, public health and the social housing providers would all benefit on different levels. From that, a joint investment agreement was developed. It was the first one in the country. The social housing providers put some funding in to get the project started but it was the CCG and council that funded it going forward. And it was all on payment by result for every person that we removed from fuel poverty."

An important factor in securing the joint investment agreement was in being able to use existing evidence to convince health professionals of the benefit to their services and patients. However, CCG characteristics and the way they had embraced a new focus on health prevention was principally the essential and foremost factor determining the availability of such funding.

"Now I have summarised a year's worth of discussions. It was a lengthy process, and we had to use evidence that was out there in terms of published information on the savings to health that can arise from fuel poverty interventions to make our case. But, our CCG have generally been quite innovative with respect to funding initiatives focused on health prevention. We have done a dragon's den type of thing every year with a different theme for housing projects and other community projects, so any organisation can bid for funding from the CCG. I think we have been lucky with the characters involved."

In Wigan, the local CCG and Wigan Borough Council had established a joint fund with the aim of supporting preventative actions, and invited applications from a range of schemes. This is another practical demonstration of how some CCGs and local authorities have looked to implement actions that take into account the new NHS focus on prevention and transformation.

"There was an opportunity to bid for funding from a joint commissioning group that has been set up between Wigan Council and Wigan Borough CCG to look at funding preventative transformational-type projects. We put forward a business case and a bid to that funding and were successful. Both the council and the CCG were quite early in deciding that they needed to work on prevention and early intervention to try and reduce demand on health and social care and that is why they invested in putting a budget aside. That was a really innovative approach really."

Overall Investment from CCGs to provide revenue and/or capital funding for fuel poverty interventions is not widespread nationally. In cases where CCGs have both embraced new imperatives and drawn on national policy objectives to bring health prevention to the forefront of their strategies and been able to reinforce their new strategic commitments with financial assistance, we can see examples of innovation and the delivery of actions to address cold-related ill health that cross sectors. These cases highlight the crucial role and benefits that arise from the joint-commissioning of services and harnessing of cross-sector partnerships.

Local NHS funding support for the multiple benefits of energy efficiency

Like CCGs, data collected through our call for evidence indicated that fuel poverty initiatives are receiving very little financial support from NHS bodies. The research was able to identify just one local NHS provider (North Midlands University Hospitals) that had been able to grant funding to a local fuel poverty initiative (Beat the Cold). It had done so through an innovative scheme named 'Saving Lives with Solar'. This scheme demonstrates the advantages of emphasising the multiple benefits of energy efficiency interventions that cross-sector divisions. Here, dedicated individuals were able to make the case for investment by highlighting the benefits of investment in terms of encouraging environmental sustainability and on potentially alleviating some of the pressures faced by particular clinical divisions within the hospital.

The impetus for the hospital to support Beat the Cold came from an estates officer who was engaged on the issue of fuel poverty, and enthusiastic to help through some very innovative routes for generating funding.

After considering community energy schemes and feed-in-tariffs, the officer was able to speak with Staffordshire Community Energy to raise the capital for over a thousand solar panels which could be installed on the roof of the hospital.

This was managed by an ethical investment company, whereby members of the public can purchase shares in the scheme. Investors will recoup their investment plus interest through the feed-in-tariff, and a proportion is allocated to a community fund. That is then granted to the local fuel poverty charity, Beat the Cold.

Whilst there were difficulties in engaging the hospital to approve the initiative, being able to make multiple cases for investment that spoke to different internal divisions (estates and clinical) ultimately led to the proposal being approved.

"The estates were really only interested in the pay back and the hard cash of it. The arrangement is that the hospital uses 100% of the electricity generated and pays a cheaper rate, so that's what they were interested in. But, with the clinical divisions, the point of engagement was really hard. It took a whole lot of effort to get people on board. We know that we have high rates of COPD-related admissions, so we focused on that area to engage the consultants. They're not used to seeing schemes like that, so it raises eyebrows. It was me taking the paper and pushing them and pushing. So many papers, so many processes, so many meetings and presentations for different groups..."

Local public health as a driver for action:

Consistent with the findings from the call for evidence, interviews with stakeholders repeatedly revealed the key role that local public health teams had played in terms of funding initiatives to tackle cold-related ill health. Tools like those currently made available by PHE meant that local public health teams were able to assess and understand the extent of a particular problem in their area, and use this data to inform what their local priorities for action should be.

Whilst at first such actions might have focused on joining existing partnerships and helping to coordinate actions in that way, when funding became available it meant that local public health was willing and able to directly commission and finance actions on an issue that they had already identified as a local priority.

In Cornwall, public health had acted as a driver for fuel poverty actions starting when their area was flagged as having high levels of excess winter deaths.

"It was based on evidence of there being something really bad going on that is preventable and we need to see what we can do about it." "We (public health) have maintained the partnership since that initial round of money and, in effect, mainstreamed it and just carried on and kept going."

Timely and locally relevant data that speaks to local priorities and evidence appears to have played a key role here.

From there, the team looked to link up with existing partnerships, until the availability of funding meant that they could commission and deliver further work under the Warm Homes, Healthy People fund. When that fund ended, public health took the decision to continue to fund initiatives.

A similar story was reflected in Leicestershire, where key individuals pushing the issue combined with the influence of local performance indicators and the availability of funding to enable action from within public health.

"There had been a programme of work led by our Adults and Communities Department called 4 Ways to Warmth. They got some national funding in 2011/12 that enabled them to appoint the Warm Homes Officers that were based in each of our district councils. Towards the end of 2013, we knew the funding was coming to an end and in effect they had to close the whole programme down. At that time, we were performing badly for both fuel poverty and excess winter deaths under the PHOF. So that meant it gave me a lever to say 'we need to be doing something about this, this is a public health issue'. I was able to persuade the Director of Public Health here and the rest of the senior management team that we should be putting some resources into this area, particularly given that the existing programme was running out of funding and was going to close down. So, we did."

Public health in Wigan had a long history of carrying out work on the issue, but was able to adapt to new funding environments by working with the CCG to develop a local evidence base and demonstrate a need for action.

"We pulled a paper together that looked at data provided by public health and CCG analysts around local fuel poverty trends, hospital admissions for conditions that were potentially cold-related and target population groups. We submitted that to our Joint Commissioning Board, which had at the time a pooled set of budgets with the local authority and CCG. From that we were fortunately successful in getting funds to develop and contribute to the AWARM programme, and meant we had some targeted monies."

Wigan also applied learnings from existing schemes to feed into the evidence that they presented.

"We looked at evidence produced by Warm Homes Oldham which showed impacts around mental health, child behaviours and so on. We modelled our work somewhat on theirs and that gave us more evidence to put forward in that original proposal."

In other areas, public health had a long history of taking actions to tackle housing-related ill health, and had continuously supported and commissioned actions to do so. However, over time the amount of funding with which that could be done had changed, as did the nature of the services delivered.

"In Nottingham City funding through the Health Action Zones was provided when public health was still part of the Primary Care Trust. We used that funding to set up a steering group which was made up of people from different organisations and different sectors, health and housing colleagues, and developed the healthy housing referral service from that. Once that funding had come to an end, public health locally picked up the funding for the healthy housing referral service and has continued to fund the service ever since. The amount of money that's been used to fund it has gradually reduced over the years, so the healthy housing referral service doesn't receive nearly as much money now as it used to, which is a shame, but it is still a very effective service."

These examples demonstrate that local public health teams can apply data insights to understand local public health priorities and to identify where there are gaps in provision locally. Encouragingly, such insights can also bring local actors together to encourage strategic action and enable referral mechanisms to be built. In addition, when funding becomes available to them local public health teams (and sometimes CCGs) can and will act to directly commission initiatives to tackle fuel poverty and cold-related ill health. This example also highlights some resilience when this funding environment changes. Whilst the nature of the services that they can provide might flex, the ways in which they attempt to continue resource key actions is adaptable.

From interview discussions, it became apparent that the nature of funding provided by public health teams did also varyconsiderably between localities.

In Cornwall, public health contributed funds to an initiative that also looked to tap into multiple sources of funding in order to ensure delivery of their full range of services could take place.

"Public health here puts in about £20,000 a year, and we work with lots of other partners in the voluntary and community sector who also bid for different pots of money. We then try to pull that together into a whole winter programme each year. So, that £20,000 of public health money might lead to a £50,000/£70,000 programme each winter. On top of that we obviously see what other capital funding is out there and in a lot of cases, we will obviously bid for funding. So we get a programme up and running quite quickly."

The extent and nature of services that can be delivered by public health tends to reflect the availability of funding locally, as became evident in our discussions with Leicestershire public health.

"In 2016 we were coming under increasing pressure to make savings. Lots of other areas were having to be cut or reduced, and one of the ways that we're doing that as a department is by bringing some of our services in-house. The other big thing that happened in the past two years was that was we were successful in securing funding under NEA's Health and Innovation Programme for capital funding. That was absolutely fantastic because it gave us money to put in central heating and insulation measures. That changed the nature of the project. It went from being about energy advice and the softer stuff to actually identifying eligible households, and getting the kit put in. This year we have gone back to being an energy advice, awareness-raising sort of programme again. But, we are putting in some bids for capital as well through things like the National Grid Warm Homes fund."

The nature of service that could be offered by public health-commissioned initiatives did depend on the type and level of funding that they could access locally and can be short-term year-on-year.

Some public health specialists also emphasised that actions to address cold homes had an important role to play in terms of health prevention and in alleviating pressures on the clinical side of things. This was further emphasised by others, where the willingness to commission and support initiatives to tackle ill health from cold homes was grounded in the fact that it was seen as a key means of reducing health inequalities – the very reason for public health's existence.

"From a health perspective we were really keen on addressing fuel poverty in terms of reducing hospital admissions and cold-related excess winter deaths."

"Excess winter deaths and morbidity are a public health issue. The fact that 25-30,000 people a year die unnecessarily of cold is a public health issue. We are there to use our money in the best way to improve the health of our population. What we should be doing, what everyone should be doing, is looking at what the real priorities are, and what the evidence base is in terms of what would you do that's best use of our limited money to improve the health of our communities. And for me, one of those is around excess winter deaths and morbidity. Now just because a lot of what we're dealing with is a housing issue, and we're not housing (we're public health), that for me is not a real argument for why we should not be investing in this. Housing budgets are incredibly limited, particularly in terms of private sector support, and we've got this crisis where people are getting ill or dying because of the cold. I think there are moral as well as technical public health imperatives for spending money in this particular area. The biggest issue all around is how we can reduce spending, particularly in the acute sector. If we can show leadership and demonstrate that putting investment into warm homes prevents people getting ill and enables them to stay at home longer it makes sense for the system as a whole. It's critical for public health to take responsibility in that and use that power and influence accordingly."

Statements such as these indicate a strong and passionate belief on the part of local public health practitioners that tackling fuel poverty and cold-related ill health is viewed by some as a major aspect of being able to deliver the public health imperative of reducing health inequalities. Teamed with the potential cost-savings to the NHS and the relief of excess winter pressures, the possibilities offered by such initiatives further tie in with new health-sector imperatives to increase sustainability, transform services and deliver meaningful actions on prevention. When able to access the necessary co-funding, local public health teams can also be willing to directly or jointly commission services themselves.

Level and duration of funding

This section explores the value of funding being accessed by fuel poverty and health initiatives and the period over which funding has typically been granted. The **Chart 3 (p55)** shows the value of funding survey respondents had been able to secure for their schemes from health-related or health sector sources in the financial year 2017/18:

Respondent schemes had mostly received in excess of £50,000 in funding in the financial year 2017/18 (current funding year). A small number (7.8%) had received less than £10,000 and five schemes (9.8%) had received between £10,000 and £49,000.

Chart 4 (p55) shows how the current year's funding differs from the previous year. This was intended to help inform our understanding of how consistent funding from such sources has been for energy efficiency and fuel poverty schemes. Worryingly, results indicate that funding trends were much more likely to be static or decreasing[ix]:

- Almost half (46.9%) reported that their level of funding had remained the same as the previous year
- For over a third (36.7%) it had decreased
- For 20.4% of schemes, the reduction in funding was significant
- For a small number (6.1%), funding had increased to some extent

ix Due to respondents selecting multiple answers, the percentages presented are greater than 100%

Chart 3: Total value of funding available to the scheme (2017/2018)

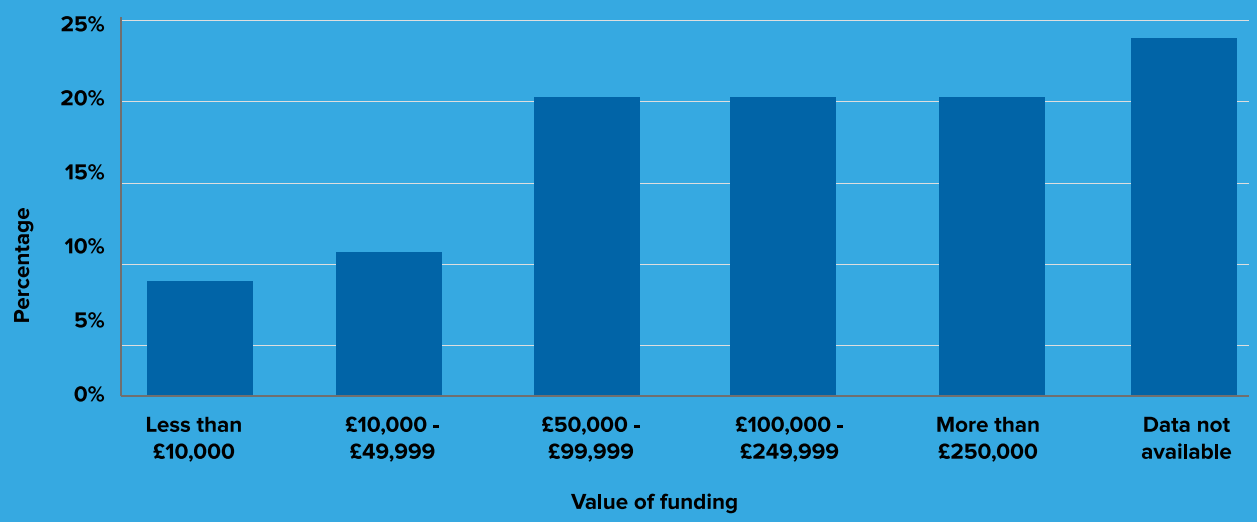
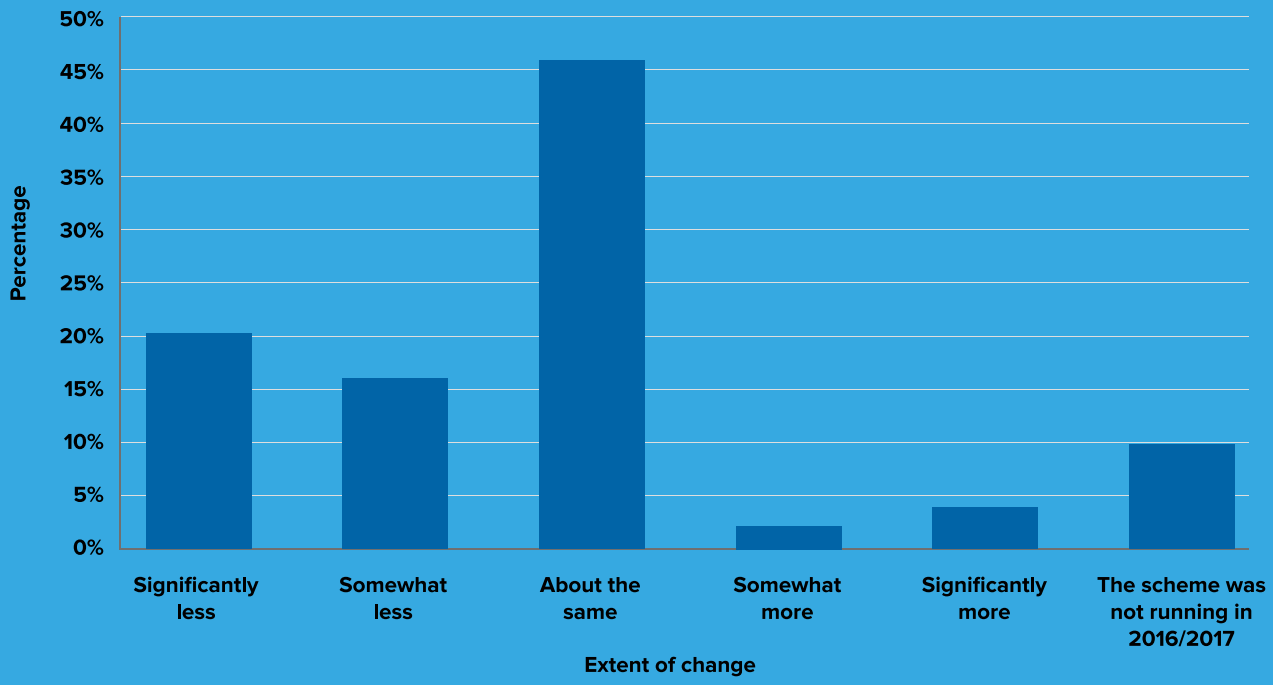


Chart 4: Level of funding in 2017/18 in comparison to the previous year



A further 45 respondents gave details on the time period over which their scheme funding was expected to last. Over one-third of respondents (37.7%) noted that their funding would discontinue at the end of the current financial year (2017/2018). 4.4% noted that they hoped to have an extension granted and another had recently received a one-off grant. A further 24.4% noted that their funding was ongoing, but one scheme did note some uncertainty: ***"[it] seems set to continue but no guarantees"***.

Another respondent also went on to highlight some levels of uncertainty with regards to the security of funding:

"[Our programme] is an ongoing programme. It has no core funding commitment so the funds available in a given year are dependent on what funding calls are open that we can apply for. So for 17/18 winter success with a bid to the National Grid Warm Homes Fund will be critical."

In total, 6.7% of schemes surveyed had already had their funding stream discontinued between March and September of 2017 and a further 4.4% schemes were due to have their funding discontinued by the end of 2017.

Three (6.7%) schemes also expected to have funding stopped later in 2018 and just four schemes (8.8%) reported a relatively stable funding situation with three schemes reporting that their funding secure up until 2019 and one with funding was secure until 2020/2021.

It was also highlighted that funding security could differ by funding type, for example, whether it was capital or revenue funding.

The general picture painted appears to be one of precariousness – even among those with ongoing programmes. Funding challenges were a key issue highlighted by 42% of survey respondents, which were complex and varied. They included:

- The short-term and often stop/start nature of funding available to fuel poverty schemes
- The lack of consistent and ongoing provision from central government
- The ability to engage health services in the funding process
- Securing the investment of staff time were also highlighted as barriers to funding for scheme delivery.
- Competing health priorities
- The requirement of many schemes that match funding must be available

Discussions with scheme delivery agents and commissioners revealed extensive frustration with the availability of funding and its impact on their capacity to deliver initiatives.

"At the Public Health department, we get a ring-fenced grant via the Department of Health and Social Care through Public Health England. That's been cut for the last two years and will be for the next two years, despite all the rhetoric about prevention being better than cure. It's been cut every year. But, on top of that, all public health departments are also being asked by their local authority to help out with the crisis that they're faced with in their cuts to revenue support grants, even though our public health grant is ring-fenced. And there are unprecedented reductions in funding for local authorities. Between 2013 and 2019 there's about 40% less money to spend on what we need. It's a real crisis. The other issue is that the ring-fence is going to come off in a couple of years, and so we will just be amongst everyone else competing for what money is available. Unless there's some drastic change at national government level this is only going to get harder and worse. So, for that reason, I think expecting public health to provide capital funding is not a chance in hell, certainly not in the short-term."

"We've got so many to try and help, which is going to be quite hard with insufficient external funding. The government shouldn't be cutting prevention budgets anymore, like it has done in the past. If it genuinely believes in prevention then it's a bit of a misnomer to cut local government health spend, because all that does is generate more demand for the NHS. We would like to see more investment. Great: National Grid Affordable Warmth Solutions are investing in it. But to a degree, that's only going to be a short-term solution. As the Committee on Fuel Poverty has highlighted, it would cost £20 billion I think to get most homes up to C-rating by 2030 or by 2025. That's not a huge amount of money every year, and I think that's where they should be directing their investment. We don't need to invent any magical medical intervention. We know what to do: we just need the money to do it."

"Two years ago, there were large in-year cuts in funding to public health and it just suddenly evaporated. We just got totally squeezed. That money was gone overnight, and we had to apply to the BCF as a way forward. It was very short-term. I mean we're going to run out of it over this winter for the older population and that'll be a shame because actually we've got a long history of work in this area and so we've built up a bit of a kind of brand. There are frontline professionals that know us and use us without us having to do any work, and without the funding it means that we won't be able to directly commission that sort of support. I do think that health budgets should be made to align with this because it is clearly so important from a preventative angle. There's something about joint funding for this that I think does make sense."

Similar discussions with a housing representative on one scheme reflected uncertainty for the future. After receiving funding through the Department of Health and Social Care in 2011/12, and later a one-off grant through the Better Care Fund, they did not know where future funding would be coming from, putting the project at risk. One NHS representative that we spoke with reflected upon why such a suggestion may not be as straightforward as it seems, and acknowledged the pressures facing acute budgets within health. At the same time, they felt that where other health organisations had not used Better Care Fund monies to invest adequately in prevention, it could affect the likelihood of such funding being available in the future. Local health bodies can therefore feel stuck between needing to spend on acute care, and needing to demonstrate innovation through prevention.

Discussions with housing representatives, however, showed that they understood such tensions well.

"Our joint offer was reliant on additional funds being made available in terms of the core public health contract and NHS contract, which is becoming more and more strained. But if it's not kind of detailed as being a key priority as part of the locality and so on, then it doesn't get done. I also think it's the responsibility of the energy companies themselves and our government to continue to offer some sort of support there."

The reflections above bring a sobering note to the end of this section. Real demonstrations of innovation, passion and determination to use existing policy levers to apply imperatives for integrating health-prevention into service delivery are evident from a range of actors, including CCGs, local NHS bodies and local public health teams. When such recognition of the issue and a willingness to actcan be combined with the capacity to act (resource availability) on health inequalities, success is clearly possible. However, discussions with stakeholdersrevealed that financial pressures upon organisations associated with budget cuts, the end of ring-fenced grants and the need to continue to meet the cost of clinical demands can (and in some cases, has) seriously compromised the ability of schemes to be commissioned and/or funded in the future.

SECTION 4: BUILDING A CASE FOR SUPPORT

This section considers the nature and extent of evidence that has been collected and presented locally to secure support and engagement from health and public health partners. It explores which bodies have been involved in compiling and/or producing required evidence and the kind of evidence that has been included in the business cases submitted by health-based fuel poverty initiatives.

What kind of evidence will most engage health and public health teams?

The call for evidence asked respondents what type of evidence they had needed to submit in support of a funding application, and which had secured or contributed to the securing of support from health and public health teams.

The kinds of evidence required to successfully access funding were those that were able to identify or align with already identified local and national health priorities, defined through the public health outcomes framework (PHOF), Sustainability and Transformation Plans (STPs), and Joint Strategic Needs Assessments (JSNAs). Preferred evidence was empirical in nature, but around a third of schemes reported success with data that was more anecdotal. A significant role was played by local public health teams or CCGs in the identification and collation of certain data in the first place, prior to any funding being granted.

Chart 5 (p60) shows that multiple and combined types of evidence were required when bidding, with a third relying on anecdote evidence from scheme delivery[x].

- The same proportion had submitted evidence that demonstrated the need to tackle cold-related ill health was already an accepted local priority, e.g. through a JSNA or its equivalent.
- A similar proportion (**31%**) had submitted evidence that the need to tackle cold-related ill health had been identified nationally (such as the NICE NG6 guideline).
- **19.1%** had presented the results of an internal evaluation.
- **11.9%** had presented evidence from an external evaluation.
- A small number (7.1%) had drawn on evidence from studies using self-reported changes as measurement metrics.
- Only **4.8%** had provided a review of published studies and a critical assessment of their methodologies.
- Just **2.4%** had provided evidence from studies using quantitative/case-control/population-level methods.
- A further **4.8%** of respondents noted that no submission/presentation/critical evaluation of health-related evidence was required.

Cases have been identified where schemes had received active and engaged support from their local health bodies to collect and produce the required evidence.

x Due to respondents selecting multiple answers, the percentages are greater than 100%

In Wigan, the CCG provided AWARM (the scheme) managers with guidance around the kind of outcomes they would be interested in achieving so that evidence could be tailored. CCG analysts worked with them during their funding bid to identify and collate the evidence that demonstrated how their project could help meet CCG priorities.

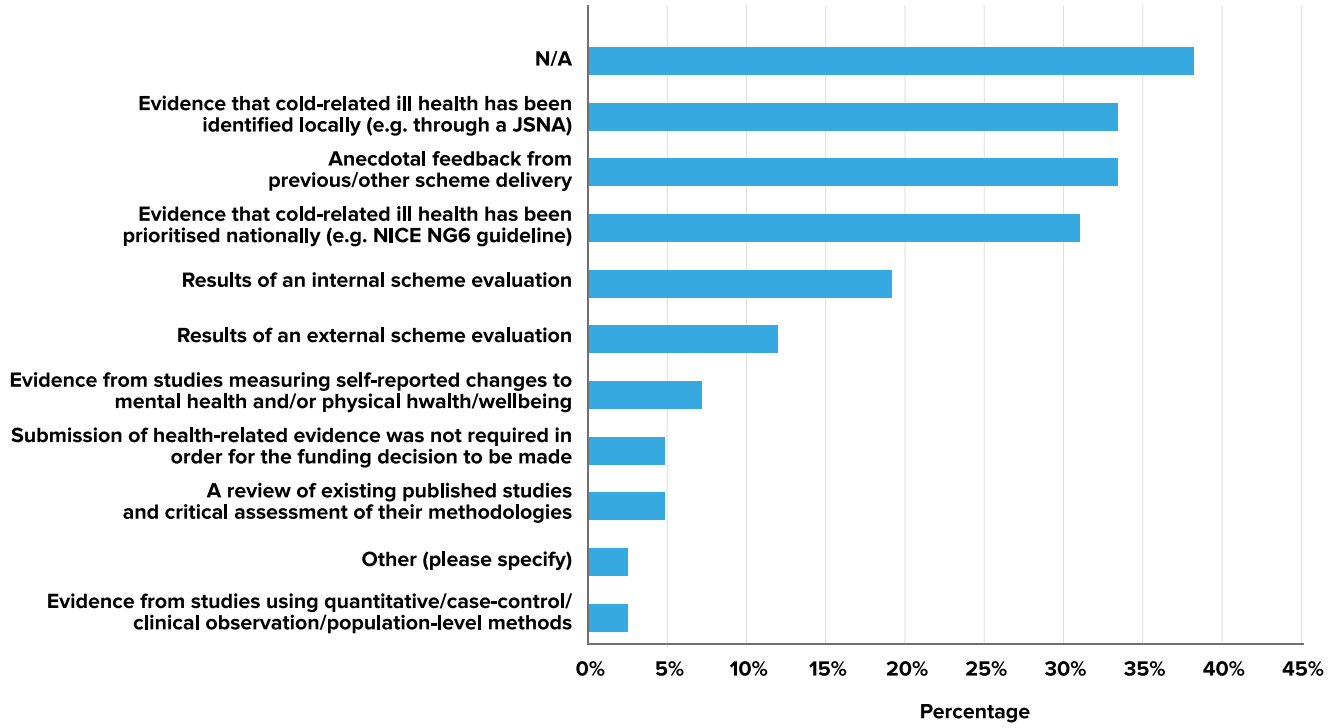
"We had discussions with the CCG to identify their criteria and priorities. It was quite an open discussion before the business case and bid was submitted, and it helped us to get it right. Initially we were thinking of looking at GP visits, but it quickly became apparent that their focus was on reducing hospital admissions. They steered us towards that during those early negotiations, saying this is where it needs to be ticking the boxes really. That led us to trying to identify the cohort of people who were most likely to have unplanned hospital admissions. We involved our Joint Intelligence Unit, which holds a lot of the council's data and some of the health data. They worked very closely with the CCG analysts to try and come up with some indicators which would pinpoint geographical areas and population groups that we should be targeting to reduce those hospital admissions for the CCG."

Content submitted to NICE by Wigan AWARM as part of a shared learning example described the process they had followed to collate this evidence in more detail. The business case, once presented, was ultimately successful in securing the funding.[148]

"Based on the health risk stratification analysis for unplanned hospital admissions conducted by Wigan Borough CCG, there were around 200 excess winter emergency hospital admissions for the 65+ age group in the year August 2011 to July 2012. Circulatory Disease (ICD10 I00 – I99) and Respiratory Disease (ICD10 J00 – J99) appeared to be major contributors. To identify people who lived in a cold or hard-to-heat home, or were particularly vulnerable to the cold because of a medical condition, we overlaid the following data sets provided by Wigan Council's Joint Intelligence Unit and Wigan Borough CCG: people who live in an area of high deprivation; people who live in privately rented terraced accommodation; people aged 65 years or over in receipt of Council Tax Reduction; and people aged 65 years or over who have a greater than 0 per cent risk of being admitted to hospital during winter (November to March) due to an illness of either the circulatory or respiratory system. This identified 20 hot spot areas within the borough, which were validated against the relevant GP practice risk registers and against local officer knowledge to confirm that, in general, they appeared to contain those most in need of assistance."

Chart 5: Nature of evidence required in order to access funding from a health and/or social care body/public health

Nature of evidence submitted to health or health-related bodies (n=42)



In other areas, the role of public health teams in providing data to support the development of a business case had been paramount.

For example, in order to access Better Care Funding, the public health team at Lewisham council had previously supported their housing and environmental health team to build a case for support. Whilst public health had provided support in collating evidence of need for the project, such engagement came about mainly through personal relationships that crossed departments.

"We've got one very active individual who works on the wider prevention for older people side, and she's been a really strong supporter of the project and really helped us to build that relationship with public health. We picked up the Better Care fund money, which is something specifically for the over 55s, by doing quite a lot of work looking at statistics and trying to articulate our offer in a way that directly spoke to what health priorities were. We had data analysts from public health giving us analysis around emergency admission rates on cardiovascular disease split for the borough by neighbourhoods and wards. That was then matched with output data on fuel poverty, as well as admission rates for over 65s. So they built up that picture of where the priority areas are. They were also really interested in seasonal flu vaccine uptake by GP practice and using low uptake as an opportunity to make our offer to GPs. So we did a lot of work around data and that I think was quite helpful in being able to tell the story in the right way."

"It comes down to individuals. Because the big focus in terms of our own public health priority is tackling obesity. That's the big headline for us as a borough. So, it wasn't an open door. But, it was one or two individuals being really supportive that mattered. They could see that this was something that would otherwise just fall by the wayside, even though it was directly relevant from a preventative health perspective."

For Liverpool Healthy Homes, engagement from public health on the programme had been strong from the start. By making a case for support, the scheme was able to change and adapt according to local need, ensuring a continuation of public health support and involvment throughout.

"Healthy Homes was originally started in 2009 to tackle all category 1 housing hazards fo which living in a cold home is one. We were given moent from the Primary Care Trust to look at the relationship between housing and health, particularly in the private rented sector. We piloted a project where we went into some private rented accommodation, assessed the property, and then enforced HHSRS actions on landlords because the property wasn't fit for purpose. From that, to date, public health has provided funding. Following this swork in 2015 Liverpool was able to introduce a self-funding city-wide landlord licensing scheme to regulate reforms, which took away the need for us to continue working with private landlords. But in 2015, Liverpool still had a higher average rate of excess winter deaths (around 240). The NICE guideline came out and suggested we needed to be doing more to tackle fuel poverty and cold homes locally. Public health (which has moved over to the City council) accepted the business case for a smaller healthy homes team to work specifically with cold homes around GP visits, bed-blocking and targeted improvements. So, public health has always funded us."

Others noted that, whilst public health was engaged on the issue and supporting of action, the level of support given could depend on how far fuel poverty was considered a priority locally. This was noted by the environmental health representative that we spoke with from Oxfordshire.

"We've got a very proactive public health officer and they've always come along to the meetings. It's not one of their key performance indicators, so although they do contribute towards the affordable warmth network and give time toeards it, they don't provide a high level of funding. whereas I know some authorities have fuel poverty as one of their actual key public health indicators. They certainly have worked collaboratively with us in a very helpful way and they only put limited funding to that. So, whilst it's not a huge focus on fuel poverty, it's a good working relationship and there is some moeny involved as well."

The role of PHE in guiding the kind of indicators local teams should be addressing, and in helping to measure performance, was discussed in interviews with stakeholders. This revealed the top-down mechanisms that are provided by PHE to enable the identification of areas of work by local teams, and provide the data necessary for evidencing local needs. Tools are provided for local areas to use via a bottom-up approach to identifying areas of need, rather than for measuring and benchmarking specified and individual area performance.

The research sought to understand the kinds of local data being used, and why. It also sought to identify how data was used to justify actions around fuel poverty, cold homes and health.

In Cornwall, delivery of the Winter Wellness programme had allowed insights to be gained both on the extent of the problem, as well as first-hand lived experiences of what it was like for people struggling in fuel pverty and/or cold homes. Data collection has continued to provide ongoing evidence of need for the project.

"We had what the statistics were telling us. But, we also had people's experiences and stories. They were telling us quite how bad it was, and highlighting the choices people were having to make."

In Leicestershire, it was a matter of highlighting poorer than average performance under the PHOF, presenting a business case as to why action in this areas was needed (and the kind of outcomes that could be achieved), as well as building on relationships between individuals.

"I had to make an evidence-based case for why this is an issue and that this is a cost-effective use of our funding. Part of it is about making the case that this is a real issue for residents and it's not just older people - it's people with babies and young children, it's people with asthma and chronic respiratory conditions, and there's also the impact it also has on the Health Service and Social Care as well. So pulling all those arguments together make a very convincing case. It wasn't simply a matter of saying, 'Oh we've got a red flag under the PHOF; can I have £100k please?' It was using all those different arguments. Certainly, relationships do really matter in these sorts of things. Good relationships and developing trust are a really important part of any change management process."

When presenting a business case for investment and supporting such initiative, telling multiple narratives that use different strands of evidence to reflect and speak to local priorities appear to work best. This might involve highlighting local PHOF performance indicators, but also working to understand what those performance indicators might mean for local residents who are at risk in terms of hospital and GP admissions for health conditions exacerbated by the cold. Such insights are often combined with local data on fuel poverty prevalence, property and tenure type or demographic data, and are used to calculate potential cost savings for the health sector. Telling the story of what life is like for those who are in fuel poverty or who are suffering from cold-related ill health can help to engage people by presenting the same narrative in a more impactful way.

To understand how else local areas could potentially calculate the cost of cold homes in their area, and the cost-savings that could accrue, the Buildings Research Establishment (BRE) were consulted. A similar model was used to evidence investment of over £1m PA revenue into the original Liverpool Healthy Homes programme that tackled all priority category one hazards, including cold homes.

BRE described the methods used to undertake their health impact assessments of energy efficiency measures.

"Our health impact assessment service followed the research we carried out into the Real Cost of Poor Housing, which began by gathering data from the English Housing Survey on the numbers and distribution of category 1 hazards across the housing stock. Using the Housing Health and Safety Rating System we identify the most likely harmful events associated with exposure to poor housing conditions, whether that be cardiovascular or respiratory illness associated with cold homes or injuries from houses with falls hazards, or damp and mould hazards. Having identified the likely harm outcomes, we've spoken to the NHS and asked what it would cost on average to treat someone suffering with one of these harm outcomes over a 12-month period. This allowed national figures to be generated on costs from poor housing, although we commonly undertake this work for local authorities. Given information on local housing conditions, our analysis involves looking at the number of harmful events likely to occur from people being left in current poor housing and then applying a treatment cost to dealing with these harmful events to the NHS, and also some considerations of wider societal costs. We also conduct cost-benefit analyses where we compare the estimated savings with the estimated costs to put those properties right. From that the local authority can see payback periods or returns on investments to identify which hazards are more attractive to invest in mitigating than others. So it helps local authorities to make decisions about where they need to invest geographically and what nature of interventions they wish to invest in."

Others noted that, whilst public health was engaged on the issue and supporting of action, the level of support given could depend on how far fuel poverty was considered a priority locally. This was noted by the environmental health representative that we spoke with from Oxfordshire.

"I think there is quite a lot of information that is already available to local authorities, such as fuel poverty rates and excess winter mortality rates. A recent development is making EPC data freely available. If you think that roughly 35-40% of the housing stock is now covered by an EPC, local authorities have access to a huge amount of data on energy efficiency. Whilst issues around the capacity of local authorities to carry out this kind of analysis remain, there is data that is freely available which can fairly easily be manipulated and analysed to identify cold homes.

Local authorities already sit on loads of benefits data which is another useful data set indicating vulnerability, and they also have fuel poverty rates which are down to lower super output area. So there is already an awful lot of information about in terms of identifying need and problems.

Professor Hills estimated the proportion of excess winter deaths that were probably down to fuel poverty. So again, you could very easily say, well in this borough we've got I don't know 460 excess winter deaths and if according to the national document that estimates that 10% were down to fuel poverty, we can estimate that 46 could be avoided if we were to remove all fuel poverty.

So there is quite a lot that local authorities can already do themselves."

Liverpool Healthy Homes programme was able to work with the BRE to calculate the cost of cold homes in the area to the NHS, and the savings that could be made through the interventions offered by the scheme.[xi]

"A BRE Report (2010), (analysing the 3 most commonly identified Cat 1 hazards and 1/5th of the data) indicated that work carried out during the first year of the programme is estimated to save the NHS in the region of £439,405 per year, from this point onwards. Over a 10-year period these could be extrapolated to an approximate saving of £4.4m. The wider benefits to society have also been calculated as approximately two and a half times that of the benefit to the NHS and therefore a saving of an estimated £1.1 million per year. Over 10 years this would result in a total saving of £11 million. BRE carried out a reassessment of the programme. When the full data set of the first year of the programme was analysed, it indicated a £55 million saving to the NHS and wider society over 10 years. The removal of Excess Cold hazard alone was estimated to save the NHS and wider society £42 million over a 10-year period" [149]

When evidence isn't enough

The research sought to understand whether there were schemes that had collated and submitted evidence of need for health-based fuel poverty initiatives in their areas, but had been unsuccessful in securing investment or support from health and health-related bodies.

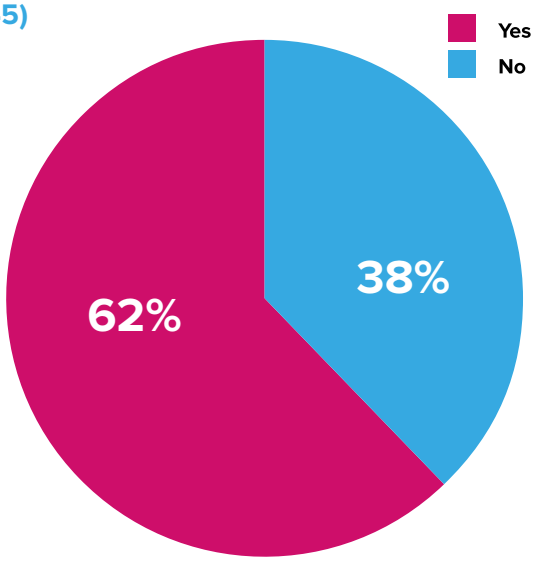
This section examines some of the barriers that can present challenges when schemes are trying to secure local buy-in and acceptance of evidence.

Challenges to evidence presented

In the call for evidence, organisations who had been unsuccessful in a funding application to a health or health-related body, or where such bodies had decided not to invest in an initiative, were asked why this had been the case.

Chart 6: Unsuccessful funding applications to health organisations/where health bodies decided not to provide funding

Organisations which have approached health bodies for funsing but did not receive any/health bodies that have been approached by local organisations for funding but did not grant funds (n=45)



Depending on the type of organisation responding, the question was tailored to reflect whether they would have been a funding/grant applicant or grant/funding provider.

A majority (62%) of schemes surveyed revealed that they had been unsuccessful in securing funding from health bodies in the past, or had declined to grant funding in the case of fund providers.This result would suggest that it is more common than not for scheme providers to seek out funding from multiple sources in acknowledgement that success in being awarded funds or sufficient funds could be challenging. A range of reasons for unsuccessful bids were highlighted by 25 respondents. A commonly cited reason was the oversubscription of funding bids, as well as the competitive nature of the funds on offer. This could be symptomatic of the situation where lots of small schemes are running (perhaps several in the same locality), rather than fewer or single, larger-scale schemes. One scheme had seen a reduction in the amount of funding from a health funder as a result of budget constraints faced by the funding organisation: ***"specific feedback here was that the scheme was good, but that it did not offer a sufficient short-term 'rate of return' on investment compared to other health-related schemes."***

Responses suggested that health and health-related bodies would be reluctant to invest in a scheme where the anticipated outcomes did not fully demonstrate how they would deliver in areas that are most important to them, or where they feel the cost-effectiveness of interventions have not been fully demonstrated. There is a tension here between evidence not being presented by the programme deliverer in a way that speaks to the priorities of local health bodies, and health bodies' limited institutional drivers to fully recognise the nationally evidenced links between action on fuel poverty/cold homes and their more clinical roles. In particular, there are issues with health bodies being unwilling or unable to integrate a greater focus of health prevention as part of their commissioning decisions (due to financial pressures or slow internal cultural change), despite the fact that the NHS Five Year Forward View clearly encourages this.

Other interviewees reflected upon why CCGs may have become disengaged from the issue of prevention, but also why it is important that they re-engage with it. They also reflected on the difficulties of achieving action on this consistently across the nation, and highlighted the contradictions in the new expectations being placed upon health sector organisations to focus on prevention and the need to continue to deliver on clinical outcomes.

NICE emphasised that there are areas where health practitioners are still questioning the value of evidence around actions to address ill health caused by living in a cold home. This might suggest that more could be done to emphasise that this is an issue that has been officially recognised in national guidance. Importantly, this is evidence that has been shown to be cost effective. Whilst NICE cannot oblige local bodies to implement the guidance, there are important ways through which the body can promote its uptake. In a context where adoption of the prevention focus contained within the Five Year Forward View is inconsistent and not widespread within the health sector, NICE should be persistent in highlighting to health sector bodies the need to incorporate the guidance, especially in relation to the development and delivery of STPs.

"I don't know why you'd be querying the guidance. I would highlight first and foremost the amount of evidence NICE looked at and the degree of consultation that went into the guidance. NICE follows international guidance in terms of process and method. There's a transparency and independence there, and all stakeholders have the opportunity to comment and contest the draft recommendations before they are published. So, I think when you can demonstrate that degree of robustness, then you should in theory be able to give assurance to people based on the best evidence that is available. Obviously, you would always want more evidence because that's the nature of things. But I would say that those are the points that I would put across."

"In terms of making the case for using the guidance, the guidance is the best evidence on what's going to have a positive effect on the issue. But the recommendations are based on cost-effectiveness, which again is one of the things that marks NICE guidance out, which is something, to put bluntly, we would sell. You know that by using NICE guidance you can be confident that you're having an effect in a good way, and that you are using what resources you do have wisely. Cost-effectiveness and affordability are not the same things but, nevertheless, it's a useful thing that people need to be aware of. And that's a thing that marks out NICE guidance from other guidance."

"We have no power, and we're not a regulator. So we cannot force people to put guidance into practice. What we do have is influence, and an implementation strategy. We produce a range of resources in which shared lessons make it a little bit easier for people to put guidelines into practice. We work quite hard across the piece to get policy-making bodies - whether that's Public Health England or government departments - to support our guidance either by putting it into policy or by recommending through membership organisations that local bodies should be putting this into practice. The subsidiary point I would make it that the guidance never goes away, because the issues that the guidance seeks to address are enduring, such as cold homes. Even if people are not immediately looking to implement a guideline or use a quality standard then often they will come back to them at some point. So there is a kind of longevity to the guidance as well and the enduring nature of it that can be helpful, even if it's uptake is not immediate."

SECTION 5: EVALUATING HEALTH OUTCOMES

This section looks at the type of outcomes being evaluated and the methods that schemes are using to do so. It also examines why they are focusing on those particular outcomes. It also explores the extent to which health bodies are willing to contribute to scheme evaluation (through enabling data-sharing mechanisms, for example), affects the ability of schemes to generate particular forms of evidence.

5.1 Extent of health-based evaluation outcomes being used by schemes

In the call for evidence, respondents were asked whether they were currently evaluating a scheme, or if they had done so previously. The majority of schemes (74%) were, or had done so.

Chart 7: Prevalence of scheme evaluations

Has your scheme been evaluated/is it in the process of being evaluated? (n=43)

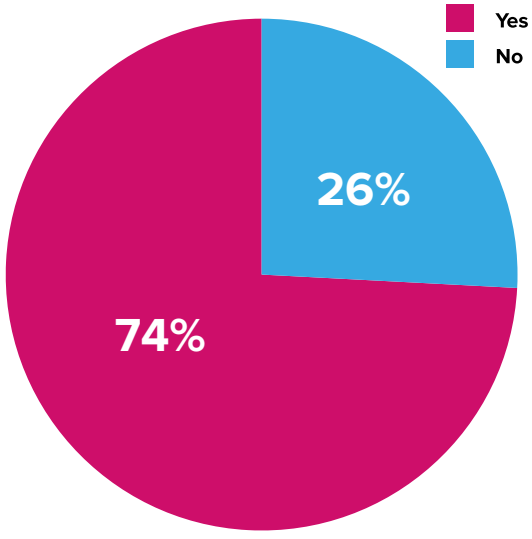


Chart 8 (p68) illustrates the range of outcomes evaluated by schemes surveyed[xii]. The most commonly assessed tended to relate specifically to household level impact. They were:

- Household personal satisfaction with physical and general wellbeing (**68.8%**)
- Energy savings (**68.8%**)
- Impact on pre-existing health conditions (**59.4%**)
- Ability to heat the home (**56.3%**)

Fewer cases had measured outcomes associated with service use and savings to society (including NHS). The most commonly assessed included:

- Local hospital admissions (**37.5%**)
- GP visits (**31.3%**)
- Savings to the health sector (**18.8%**)

Respondents highlighted a number of challenges related to the ability to evidence the health benefits and outcomes of fuel poverty schemes. Obtaining specific evidence on the improvement of health conditions was particularly challenging:

"The scheme has been audited and reviewed and the benefits quantified as fully as possible but the complex nature of household issues and interventions means that it is very difficult to evidence the exact impact the scheme has."

(xii) Due to respondents selecting multiple answers, the percentages presented are greater than 100%.

Another noted that they had been presented with challenges when: ***"finding accurate and robust ways to evidence the impacts of the scheme as currently we can only use patient anecdotal evidence for this purpose."***

The kind of evidence required by health bodies (and why they were prioritising measurement of particular outcomes) was discussed in conversations with CCG representatives.

In Gloucestershire, for example, the priority for evaluation was in being able to demonstrate an impact on avoidable admissions through respiratory disease. In order to demonstrate these outcomes, the CCG felt two types of approach in particular were necessary – these would look at how people feel, and track the number of admissions.

"I know that a lot of those people will turn up at hospital and will probably stay overnight. And, actually, if they are going back to a cold damp home, their problem is going to continue anyway. It's not about drug therapy or how they use their inhalers; it's the fact that the environment they are living in is making them unwell. So, we want to make sure that we track some of those patients to see whether by having put them through the Warm and Well process, we have reduced the number of admissions they have had in a given period of time."

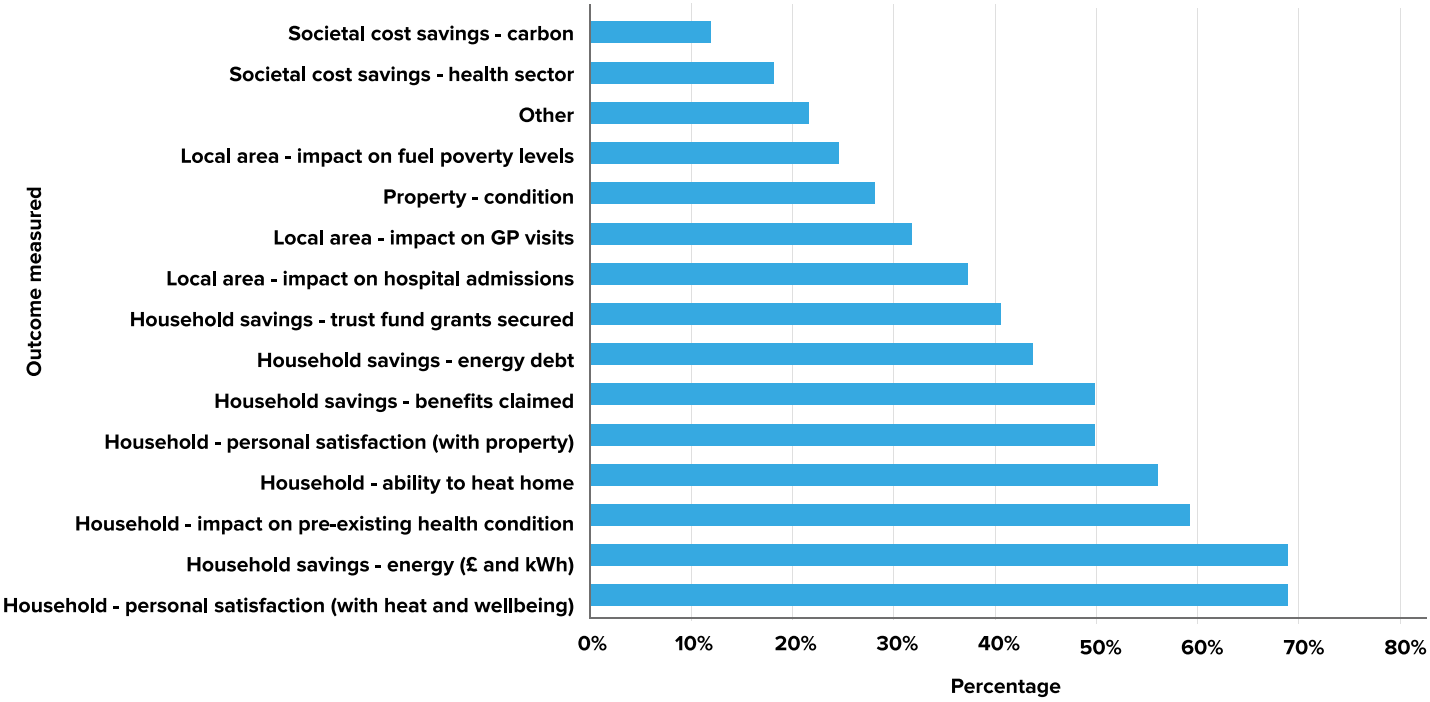
"We might use the PAMS approach (Patient Activation Measurement) to understand how far people feel better supported to look after themselves. But we are in hard times in health and in social care, and we need to have some sort of tangible evaluation of these services that show reduction in the use of services. So, we would be looking at the number of admissions. If somebody has had six admissions in the last year, and we could reduce that to two or three, that is definitely a positive outcome for us. And it means, in terms of the best use of public monies and cost-effectiveness, it is a saving."

However, NHS providers acknowledged that evidencing outcomes that can speak to clinical interests from fuel poverty-related interventions can be difficult, and that long-term monitoring is beneficial.

"It's pretty hard to monitor environmental conditions and their impact on people with chronic conditions and who will not get completely better. But, we've had a lot of positive feedback for how people are feeling, which is an important indicator for wellbeing. It's quite convoluted, and anything with a prevention-based public health angle is more of a long-term thing. We're confident that as the scheme grows, develops and we get numbers, we could do some good."

Chart 8: Evaluation outcomes measured

Evaluation outcomes measured (n=32)



Public health respondents discussed the complexities of evaluating scheme impact. Public health in Cornwall, for example, highlighted the difficulties involved in demonstrating statistical impact at population level, especially with schemes that had short delivery duration periods.

At the same time, there are extensive challenges relating to how improvements to physical health could be effectively measured by schemes that are principally delivery focused and so not suitable for traditional evaluation methods, such as trials. Delivery periods and available resources both act to restrict evaluation options. A further complicating factor is the nature of ill health present in the target population, for example, levels of pre-existing and chronic illness and ability. This can make it extremely difficult to isolate intervention effects to show not only correlation, but causation. As such, some impacts can be more effectively demonstrated through narrative, and making the stories of local people come to life, particularly where impacts (such as outcomes associated with behaviour and coping mechanisms) are more easily captured qualitatively.

In terms of reaching calculations around cost savings, they explained that they had found estimations of impact to be a useful tool to use alongside the narrative stories they told.

> ***"We calculate it on the basis of, we give this many customers emergency help and then we have a rough rule of thumb that 25% of them would have had a hospital admission had we not done the intervention. So it's a bit of a double negative. And then we base it on looking at the cost of ambulance admissions (about £200-£250), and putting a figure on the cost of a hospital regardless of whatever health condition they have (so about £600-£1000). It's just a broad figure, because obviously it would vary if they had a fall and needed their hip repairing or if they just went in with a minor condition and then came straight back out again. It is a very rough guideline, but we've been consistent in our formula and it's probably an underestimate as well."***

These examples suggest that, in its move towards prevention and integration, the health sector may need to consider more realistic and appropriate methods for outcomes measurement where the interventions in question have been designed to tackle a social determinant of health that is extremely complex and its direct impact on health difficult to isolate, especially in the short-term.

Traditional scientific methods typically associated with health research are not always appropriate, suitable nor capable of providing some of the required insights. To some extent, this relates to a need to separate demands to meet immediate pressures in the acute sector from the requirements to support health prevention outcomes. Where health bodies fear funds are being moved from the acute sector into prevention they may be more risk averse in terms of financing and supporting such measures. However, being given room to invest resources in prevention, with appropriate outcomes monitoring without jeopardising acute spending in the short-term, may be a means of increasing health sector confidence in and acceptance of outcomes that cannot be easily demonstrated in clinical terms. Interviews also revealed the steps that different schemes have taken to demonstrate outcomes that can speak to the clinical interests of health bodies.

The public health team in Leicestershire had attempted to do more quantitative analysis looking at scheme impact at the population level. But, they have so far been unable to progress this due to issues relating to data-sharing.

"We've got an evaluation plan which is using a system called PI care track, and this is something that was jointly purchased by the local authority and the CCG. It gives you access to individual patient-level data. We got permission from the householders to have access to their National Insurance number so that we could track them on this system for purposes of research. The idea is that we would follow them for a year following the last grant and the year before they had the improvements, and notice any changes in the number of hospital episodes and use of social care packages. We would then compare them with an anonymised but matched cohort of individuals who hadn't had the grant. Unfortunately, PI Systems then got into bother with NHS Digital in terms of confidentiality and information governance. The whole system has been put on hold, so we can't use it until they get to the bottom of whether they decide it's legal or not, which is immensely frustrating. But, that's where we are with it at the moment. So even though we've actually got permission from the individuals, we haven't got permission from NHS Digital because they fear the matched cohort would be potentially identifiable - even though the names are anonymised - because of their conditions and patterns of health usage. The thing is, this PI System stuff could be really powerful in order to be able to demonstrate that people who get capital improvements go on to use healthcare less and have less social care. So you can then start doing a proper economic analysis and benefits of the programme, and making a case then for either nationally or locally for CCGs, hospitals and social care, to say, if you invest in this you'll save money, that's the theory anyway. So we'll see how that goes, it's all got still to be played out."

Where health bodies, who are being encouraged to demonstrate transformations in how they deliver integrated services with a focus on health prevention, maintain requirements to measure outcomes that can demonstrate that investment in this area will help to alleviate pressures in the clinical/acute sector, then the appropriate mechanisms that would enable scheme providers to achieve this should be supported and available.The benefits of doing so become evident when looking at examples of where cross-sector working and adequate local data-sharing mechanisms have the potential to allow for clinical outcomes measurement.

> ***"Adequate data-sharing mechanisms that advance prevention actions and allow for the tracking of patient outcomes should be considered alongside possible actions for NHS Digital, and those involved in the establishing and agreement of data-sharing arrangements locally, to align their data protection regulations with the demands being made by their health sector bodies."***

More often than not, local schemes have experienced difficulties in accessing data that could allow them to track patient usage of health services. Given this, the research sought to understand whether there were other tools available that could allow cost-savings to the health sector that accrue from cold homes-relatedinterventions to be measured and evidenced.

Nationally, work is ongoing to enable greater efficiency and accuracy in the way cost savings that can arise from energy efficiency interventions are calculated. A representative from BEIS explained that tools are available, such as the Health Impacts of Domestic Energy Efficiency (HIDEEM) model, which provides estimates of indoor environmental exposure, and changes in exposure and health resulting from energy efficiency interventions.

The model was developed for the former Department of Energy and Climate Change (DECC) by University College London (UCL), the Bartlett School of Graduate Studies, and the London School of Hygiene and Tropical Medicine, and uses data from the English Housing Survey.

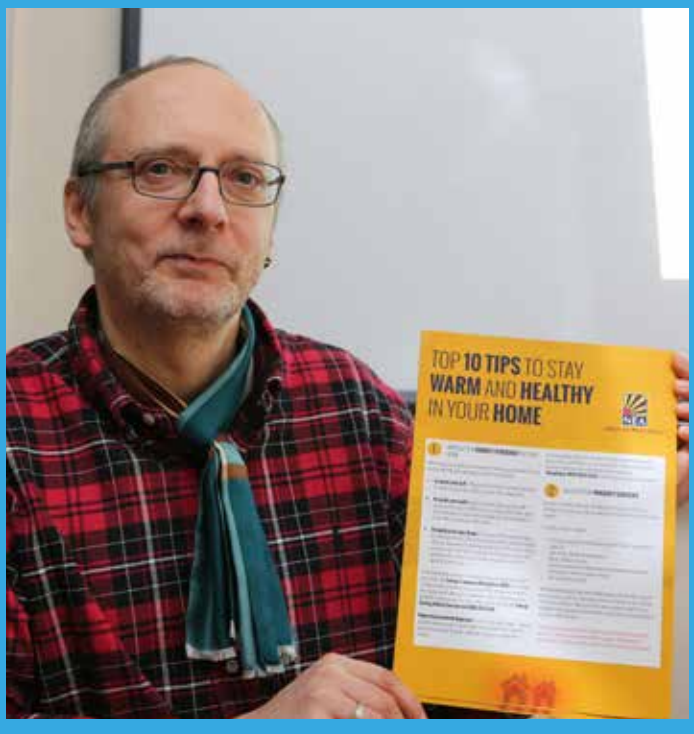
For example, Wigan AWARM had commissioned an academic partner to carry out an evaluation that would provide the CCG with the kind of data and evidence they required. Significantly, having a data-sharing agreement in place with the CCG had enabled the tracking of NHS data. Given that the CCG was co-located with the local authority, and that the two agencies were already working together on data and commissioning, this process was made much easier.

"We only need the individual's permission to collect their NHS numbers. So, we explain why we are collecting it and they have to sign a disclaimer to agree that we're okay to collect them. We then provide an anonymised version of the NHS numbers to the CCG so that they can track the rate of hospital admissions pre- and post-intervention. Sheffield Hallam University will then aggregate the data to give us a total impact for the whole cohort. It's whether it's a big enough cohort that is the biggest challenge, but hopefully we will have enough data to show what impact on hospital admissions we've had and calculate cost savings as a result. That will be of greatest interest to my health colleagues, in terms of whether the funding of the scheme has been cost effective for them. Once we get this round of evaluation completed and if it proves the case that the model has worked and we've saved more than we've invested, then I think the CCG will accept that this is a good model to carry on with and it is saving them money and it is improving people's health and wellbeing in the long term."

Whilst work is ongoing to improve the model, BEIS emphasised that local areas should not defer efforts to build links with the health sector, evidence cost-savings in their area, and to share those learnings with others.

"We're aware of lots of local authorities doing more piecemeal work on the savings to their local health services of domestic energy efficiency. And something that's been raised previously is the challenge of there not being a central methodology upon which those local work streams are being based. It's an important factor, but we don't want to hold back upon trying to build links with the health service until we've got the silver bullet of either it being HIDEEM ready or having a standard methodology. So we should be sharing learning from those that have been successful in using that evidence to be compelling to their health service colleagues and to be able to secure funding, having demonstrated those links."

In Wigan, the team was able to calculate the estimated cost to health of fuel poverty and poor housing, as well as savings that could be made, using the HIDEEM model. They applied those calculations to the interventions delivered between 200/1 and 2013/14 through the Government's Warm Front Scheme.[148]



"The total benefit over 2000/1 – 2012/13 comes to £10,991,462, based on 18,529 installations. If these figures are averaged out over the 12-year period, this would mean that on average per year 1,544 installations would provide an average benefit of £915,955 based on QALY calculations. For a cohort of 1000, this would equate to approximately £593,235."

The team further used data from both public health and the CCG to demonstrate the potential savings that could result from reduced emergency admissions in the winter.[165]

"For the year August 2011 to July 2012, there were around 1,800 additional acute hospital occupied bed days associated with around 200 excess winter emergency admissions for the 65+ age group. An estimate of the average cost of a hospital admission occupied bed day is £575. Therefore, the total cost of excess winter emergency admissions during the year examined is estimated at around £1,000,000. If it is assumed (conservatively) that at the beginning of the programme 10% of the at-risk population can be identified and that the intervention is 40% effective then the potential saving is around £40,000 per year in respect of reduced winter emergency admissions. As the programme progresses and both identification of those at risk and the effectiveness of the intervention improve, say to 20% and 60% respectively, the potential financial savings increase to £120,000 per year. As the winter of 2011/12 was fairly unremarkable, it is possible that further savings could be made during more severe winters such as 2009/10. Again (conservatively) if it is assumed that the risk of excess winter admission is one third higher during a severe winter then the potential annual financial saving increases to £160,000 during such years. An alternative analysis based on Wigan Borough CCG data for the November to March 2013-14 winter shows that there were 265 admissions of patients living in the top five, four-digit postcode areas for illness of either the circulatory or respiratory system. Working on an average cost of £1,700 per admission, the total expenditure would have been £450,500. A 21.5% reduction in admissions would thus equate to a potential saving of £97,000 based on this cohort over this time period. (21.5% of all excess winter deaths are attributable to cold homes, referenced in the Marmot review – 'Health Impacts of cold homes and fuel poverty'. Assumed similar for hospital admissions)."

A small number of organisations (such as the BRE, Sheffield Hallam University) and researchers (e.g., Stafford) have attempted to calculate the health costs of cold homes to society (including the health sector), as well as the economic benefits that can accrue from energy efficiency interventions[86, 87]. Others have provided guidance as to possible methods for doing so.[150]

For areas looking to calculate Social Return on Investment (SROI) of their interventions, there are free guides that they can access to enable the required calculations; such as that produced by the East Riding of Yorkshire Council in 2015.[151]

However, the diversity and locally bespoke nature of programme evaluations discussed in this section indicate the difficulties in collating their disparate findings into an overall and coherent assessment of impact across the country. For this, a national joint health and home energy efficiency approach with corresponding evaluation tools and methodologies would be required.

5.2 Scheme delivery: targeting and evaluating the specific health conditions

This section looks to understand how working with a health or health-related body might affect aspects of scheme delivery in terms of the groups that are targeted by interventions, and why. It also assesses whether there are any particular health- or public health- based concerns that might affect how a scheme that looks to address cold-related ill health is delivered (and to whom) and how far delivery that responds to such concerns is affected by other issues, such as the nature of funding that is available.

Targeting for health

Respondents to the call for evidence were asked to detail what types of households their schemes targeted, the nature of any health conditions targeted, and why that was so. Chart 9 below shows that the most common type of households targeted were those containing someone with a health condition/ disability (86.4%)[viii]. Most respondents were either targeting households that specifically had an existing health condition, or those groups within the population that have been shown to be at risk of fuel poverty and/or cold-related ill health. Other priority groups targeted for assistance included:

- **75%** of respondents targeted low-income households/households in receipt of certain benefits
- **70.6%** targeted households containing older people
- **61.4%** targeted households with families containing young children (under 5 years of age)
- **45.6%** were targeting households in deprived communities
- **38.6%** targeted homes below a particular EPC band threshold (38.6%)
- **34.1%** were targeting rural/off-gas households
- **6.8%** said that they did not target specific types of households. One respondent went on to note that this can be adapted especially when they are seeking funding from a grant which has specific eligibility criteria.

Respondents were then asked to detail which types of health condition (if any) their schemes targeted (see chart 10 below). The most common type of health condition targeted by schemes was COPD (59.1% of respondents). Schemes also tended to focus targeting on those health conditions that have been most strongly linked with the effects of living in a cold home within the existing evidence base. Four respondents noted that they targeted all health conditions, and one went on to note that ***"Any medical condition that makes a resident vulnerable to cold."***

Over half of respondents (**52.3%**) were espectively targeting:

- Cardiovascular disease
- Heart disease
- Strokes
- Asthma
- Bronchitis.

Furthermore:

- **50%** targeted pneumonia
- **47.7%** noted that they targeted other circulatory diseases and other respiratory diseases respectively
- **45.6%** were targeting those with mental health conditions.

(viii) Due to respondents selecting multiple answers, the percentages presented sum great than 100%.

Respondents were asked to indicate why they target the health conditions detailed in Chart 11 below. Respondents went on to select multiple responses for this question. The most common reason for schemes targeting specific health conditions was a combination of one or more of: information gathered from the evidence base/particular referral relationships/funding requirements (51.9% of respondents). A common form of evidence used was the NICE guideline, which was explicitly highlighted by 36% of respondents.

This was often used alongside other methods of accessing advice, evidence and establishing referral relationships. 8% went on to note that they also worked with information from local CCGs and public health, and others noted that they used evidence from the Royal College of General Practitioners, Marmot Reports, the Cold Weather Plan for England, and the Hills Review. Participants also utilised a range of referral routes including: local hospitals, community and voluntary sector organisations and local government agencies.

Chart 9: Household type targeted

What types of household does the scheme target? (n=44)

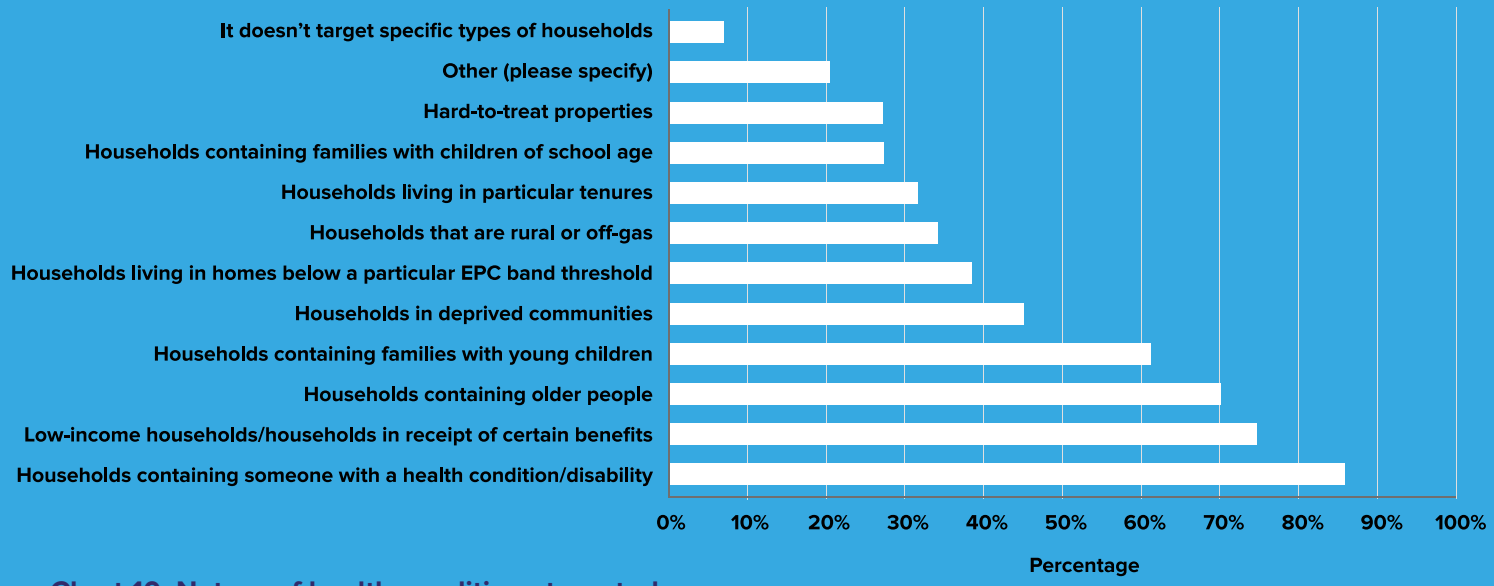


Chart 10: Nature of health conditions targeted

Nature of health conditions targeted (n=44)

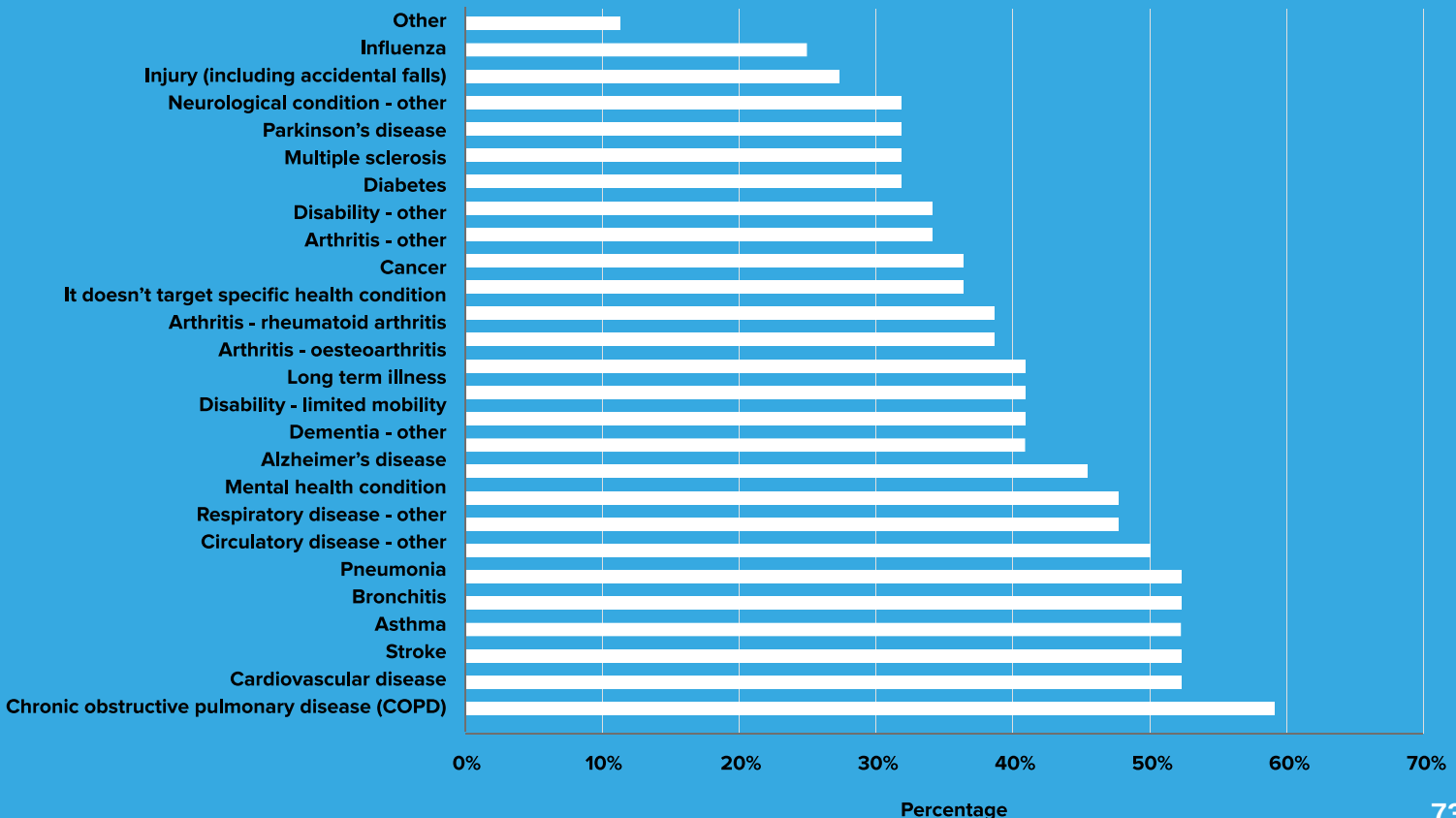
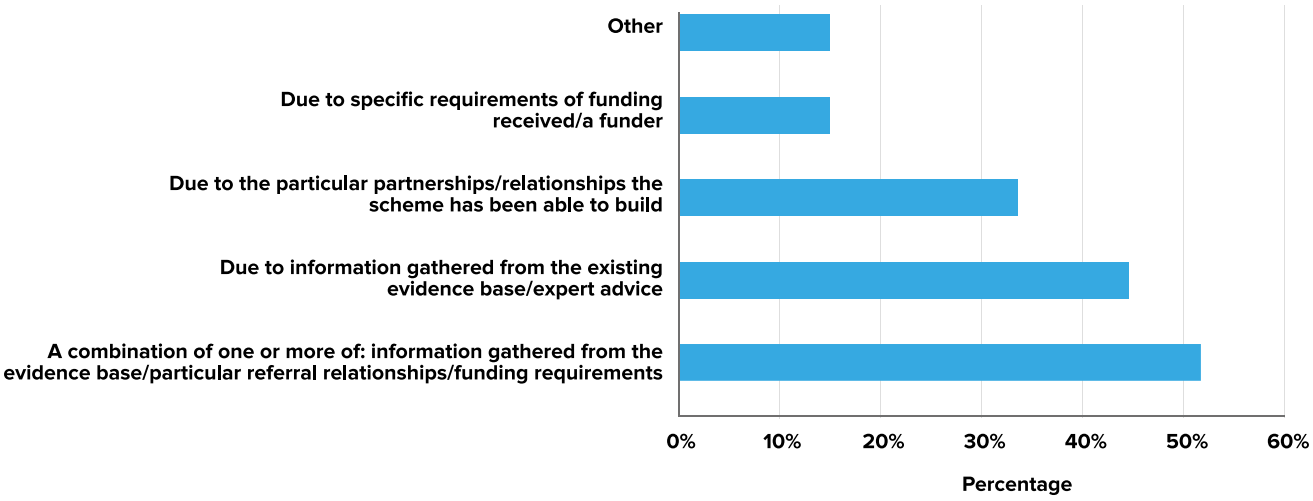


Chart 11: Reasons for targeting particular health conditions

Reasons for targeting particular health conditions (n=27)



BEIS acknowledged that the spread of cold-related ill health is wider than only those groups who are in fuel poverty. But, they emphasised that, to some extent, a distinction between the groups needed to be maintained if particular government commitments were to be met. This again speaks to the tensions that can occur between targeting for fuel poverty and targeting for public health, and suggests that there is room for other key players beyond energy and housing to participate in joined-up actions.

The possibility of using different funding streams to be able to help households that are either living in fuel poverty and/or are vulnerable to cold-related ill health offers a means to bring together the targeting aims of different sectors. This includes those that look to alleviate fuel poverty and those that seek to prevent ill health arising from cold homes across the entire population.

PHE highlighted that being able to align and simultaneously meet cross-sector objectives does depend on the multiple funding sources being continuously available and complementary.

"At PHE we have plenty of evidence from all of the multiple small research projects that have been done that trying to combine lots of different small pots of funding that only are very short-term has all sorts of consequences for the ability of these programmes to be effective and efficient, and to continue. Stop-start funding and turnover of staff creates problems.

There needs to be more money put into this. There are things like the clean growth strategy, there is ECO and there are other mechanisms that we could be looking at to ensure that energy efficient housing is considered an integral part of all of these strategies.

So we're trying to do our bit and make sure that this is seen as a key element to protect and improve health as part of these wider government strategies."

SECTION 6: CROSS-SECTOR POLICY AND PROGRAMME INTEGRATION: THE NATIONAL PICTURE

BEIS, we were told that the department has made moves to weave a health perspective into key documents like the fuel poverty strategy. This has involved building good relationships with certain branches of the Department of Health and Public Health England.

This suggests that the nature of cross-sector collaboration happening nationally reflects that happening at a local level in terms of seeing more engagement from Public Health agencies (like PHE) than NHS bodies.

Recognising that the impacts of living in fuel poverty and experiencing cold temperatures at home fall beyond the energy sector alone, BEIS described how the provision of grants to best practice schemes in following the end of the Warm Homes, Healthy People Fund had been able to encourage further cross-sector collaborations at a local level.

BEIS also outlined efforts that have taken place at a national level to direct and target the funding that is currently available to those deemed most vulnerable from a fuel poverty perspective.

There was, however, acknowledgement that support is still required from the top down when it comes to encouraging the kind of cross-sector collaborations that are aimed at health prevention. Focusing on helping local authorities to implement best practice lessons from elsewhere could help to achieve short-term gains while strategic, top-level actions continue to be developed.

"It's really important to bridge the gap. It's useful to work with organisations like PHE, but it is going to take time to develop the evidence and understanding and even just connections with those organisations nationally. That means that it's important to try and build those links locally, where local authorities can perhaps work more flexibly within their teams and with how they plan resources locally. When we were looking to develop the fuel poverty strategy, we recognised that health was going to be a really key component. Some of the local authority funding that was announced alongside the strategy was a recognition of that. Work previously done by NEA had identified examples of good practice, and we provided funding to upscale that work so that it could continue, grow, and be evaluated. We recognise that sometimes local authorities can be best placed to build those connections with the health service. Where there's a lot of good work happening in several local authorities, so we should look to showcase that, so that others that can replicate it from the bottom up - where resources do allow."

"In some of our national partnerships we have a quite good relationship and understanding with some parts of the health sector, in particular regarding our fuel poverty strategy for England and Public Health England. We deal with them more so on an individual policy by policy basis. So, when we were building in the ECO flex proposals, PHE offered guidance on the type of cold-related ill health characteristics to focus in on, the degree to which we should be prescriptive, and which areas within the health sector are the most appropriate to deal with. But, it's pretty well known that the NHS is busy and overstretched, and they're not going to share the same priorities as we do from an energy perspective. There is that strain on their resources and they have competing priorities, so we need to find the right trigger for action to get more done in that area."

There's no Exchequer funding for energy efficiency and fuel poverty currently. But, the policy changes they've been making over the past couple of years have been improving our ability to tackle fuel poverty in line with the fuel poverty strategy. We've been reforming the policies that we do have so that they can have more impact.

Whilst ECO has reduced in overall size, we've increased the affordable warmth element so that more of it is directed at low income and vulnerable households. The Clean Growth Strategy that was published a couple of months ago confirmed the government would have an energy efficiency policy of at least the current value of ECO - so that's 640 million or greater annually - until 2028.

This would be complemented with making amendments to the private rented sector regulations, and consulting on minimum standards for the rental sector up to 2030. It would put a duty on landlords to take responsibility for upgrading the energy efficiency of their housing stock.

So, we'll be looking to review that policy next. After that we'll be able to start to draw out where there are particular areas that are more likely to be left behind as we improve the energy efficiency of all homes, and identify who might need additional subsidy to make that transition.

But until we've rolled out all those programmes, it's not possible to accurately set out which of the specific policy areas we want to focus on with a view to closing any of those funding gaps, if they do exist.

So, from a fuel poverty perspective, it is definitely government's responsibility to improve the energy efficiency of fuel poor homes by 2030, and we're committed to doing that.

But, we just need to make sure we've got the right tools in place to meet that target.

NICE also reflected on the complexity involved with encouraging a shift to prevention within the NHS, and how persistent encouragement is needed to make sure recognition of fuel poverty and the health impacts of cold homes become embedded in sustainability and transformation planning. Reflecting on how integration might be further encouraged or 'helped' at a policy level, it was emphasised how more collaboration between departments in central government (alongside appropriate investment) was needed to ensure different policy agendas can better align, especially in a context where local government is facing increasing financial pressure.

"The NG6 guidance hasn't come up as an issue or as a priority in STP planning to date. The immediate issues that are facing the NHS are preoccupying them in terms of their STP focus - reconfiguration of services, ensuring that clinical services are sustained. There's a broader prevention agenda that they are signed up to and the Five Year Forward View is a part of that. I just don't think that those two areas have had quite the prominence that they might have had. But, hopefully, as the process evolves and they evolve from STPs into integrated care services, there will be growing interest in health and well-being beyond the immediate clinical need. There's the adult social care ambitions under the Better Care Fund which encourages health and social organisations to work locally together in a more integrated way. That's where I think some of these policies will come to the fore. However, you've got multifaceted issues that are not amenable to legislation and also require resources. That is then a much longer process and I think that rather than making things happen the focus has to be on trying to help things happen and building up the cumulative impact."

"You look at the evidence on implementation and multi-disciplinary/multi-organisational approaches are most recommended. That's what STPs are supposed to be about. The role for central government could be to try and knit some of these separate policy agendas together. There is a resource issue as well: we are in times of austerity, and one of the principal areas that has borne the brunt of that has been local government. That inevitably has an impact on your ability to fund third sector organisations to carry out the recommendations. There are key government priorities that might be set and might encourage that closer working together."

Representatives from PHE similarly recognised the difficulties that can occur when attempting to encourage actions from a national level at a time when attempts to implement them locally may encounter other barriers, particularly with regards to accessing resources.

"Awareness has increased significantly across the country of the dangers to health and wellbeing of living in a cold home and in fuel poverty. There are areas of local work and really good practice going on. How far that's extended everywhere, however, is another matter. Some areas have been severely impacted by austerity issues, changes to benefits and changes to some of the previous national initiatives that funded fuel poverty initiatives."

More specifically, the housing and environmental health teams that we spoke to observed that it would be difficult to replicate best practice actions on a national scale given the lack of statutory or mandatory requirements (and adequate levels of funding to fully support such requirements, if they existed) for local authorities to do so.

"It's quite amazing what we can achieve and what people will do to drive the environmental and fuel poverty agenda. But, you need more teeth. You need the legislation and you need some form of statutory requirement to local authorities to put funding behind this kind of thing, because that helps. Otherwise, you're going to vary depending on what you've got from each individual local authority. If you really want to keep it simple, it would an idea to have a statutory process that sits under the HECA requirements and is funded. That'd make a difference."

"In terms of funding, if there's any way to mainstream a requirement upon local authorities to make it an essential part of everyone's fuel policy strategy to have a scheme available in line with the NICE guidelines, that would be really useful for authorities that haven't been able to build those relationships. Whether we can look at building some of this work in as a requirement under CCG priorities so that it becomes again mainstreamed; something they need to provide and report on, is another option to consider. We need to ensure this isn't just a 'nice to have' add-on, which can drop off the agenda if there are more pressing priorities linked to funding. Those are the main areas where strategic decision makers can help, particularly for authorities who haven't got schemes."

Ultimately, the BRE argued that this needs to be an issue on which actions are delivered across sectors.

"Surely this needs to be a cross-departmental issue, or you're going to have these disconnects all of the time. There needs to be closer working between housing and health departments, because they interact on so many different levels in so many different ways and there needs to be a coherent strategy or approach between them. Otherwise, you're always going to have these problems."

One possible approach could be the establishment of a cross-departmental committee for health and homes, in recognition of the interconnectedness of policy agendas. Any such actions at a national level however, will need to be linked and complemented by decision-making processes at a local level that will enable intra-locality coordination. Local authorities, third sector organisations and the health sector would need to work together and be able to share data appropriately and effectively to identify and target fuel-poor households. They would also need to have access to appropriate resourcing mechanisms. At a programme funding level, a cost-effective way of delivering long-term outcomes at scale could be to give a small percentage of funds from each organisation jointly and on a consistent basis, that could then be matched by local programmes. This could complement the introduction of funding programmes similar to those that have previously been made available, such as the Department of Health's Warm Homes Healthy People Fund or the Department of Energy and Climate Change's Health Booster Fund.

SECTION 7: WORKING UNDER ONE ROOF – DISCOURSE, SUMMARY AND RECOMMENDATIONS

What does Working Under One Roof mean?

The report has highlighted the stark health impacts that living in a cold home can have, and the national policy acceptance of the issue. It examined the extent to which the cost and ill health caused by fuel poverty and poor housing has been acted upon by key local and national actors.

National barriers were also briefly explored to provide necessary context for our primary research findings presented above and help explain the feedback received from existing national departments or agencies.

In summary, the key findings of the previous chapters are laid out below. However, what they consistently underline is a shared desire and a current opportunity to build on the progress made to date.

This must be done with collaboration and genuine commitment to partnership working. In short, we must all look to understand the progress made to date, and remove the barriers that are preventing this work being approached systematically and at a national scale and develop long-term, consistent local and national ways of "Working Under One Roof".

Nature of health sector/public health involvement and sources of funding for health based fuel poverty schemes

Local public health teams are those who are most likely to be commissioning and investing in fuel poverty initiatives. However, a number of schemes surveyed were able to engage with a variety of health-related bodies to at least generate referrals.

Public health was by some margin the leading principal and contributing funder of both **capital** and **revenue** costs (20.5%). Contributions from CCGs or the NHS fell far below this.

Local public health teams were commissioning services for 23.1% of schemes surveyed and were contributing funding for 20.5%

CCGs had commissioned and were funding 7.7% of schemes surveyed

The NHS was funding 2.6% .

Health and wellbeing boards had commissioned 2.6% of schemes

Schemes receiving health-sector referrals were working with GPs (46.2%); district nurses (41%); 38.5% (practice nurses; and pharmacists (23.1%)

Public Health: A local role

- **Local public health practitioners consider that tackling fuel poverty and cold-related ill health is a major aspect of being able to reduce health inequalities.**
- **An engaged local public health team can act as broker, coordinator and/or funder of actions that cross multiple sectors.**
- **Public health teams can apply data insights to understand local public health priorities and to identify where there are gaps in provision.**
- **They can bring local actors together to encourage strategic action and build practical referral mechanisms.**
- **Efforts to push action from within public health tended to originate with one or two dedicated public health practitioners. At other times, Directors of Public Health were equally as engaged on the issue. When such multi-level buy-in is achieved, more pathways into engaging CCGs and other health sector partners can be opened up.**
- **Local public health teams have directly commissioned initiatives to tackle fuel poverty and cold-related ill health. Changes to funding environments can act to dramatically change the nature of the services that they provide. However, good practice examples highlighted within this report show that commissioning from integrated budgets, or using existing resources in innovative ways and in ways that speak to national NHS priorities is possible.**

Local areas need to show greater consistency in meeting the NICE NG6 guideline and develop a standardised approach to cold-related ill health prevention (including relevant hospital discharge practices). **Policy levers** at a national level are necessary to drive a **focus on health-prevention and integration**, and enable local actors to **make a case for investment**. There is **potential for CCGs, HWBs and NHS bodies to be collectively engaged** to deliver the **multiple benefits of fuel poverty and energy efficiency actions cost-effectively by improved joint working**. Working across organisational barriers is not easy but the best examples show that it is possible.

Health sector: imperatives for action

- **Teamed with the potential cost-savings to the NHS and the relief of excess winter pressures, affordable warmth initiatives tie in with new health-sector imperatives to increase sustainability, transform services and deliver meaningful actions on prevention.**
- **The likelihood of support for fuel poverty services being integrated into prevention-based action from within the NHS still depends on passionate and well-placed individuals.**
- **Investment from CCGs and NHS bodies in fuel poverty interventions is not widespread. But, there are cases where health sector organisations have embraced new imperatives to bring health prevention to the forefront of their strategies and have been able to reinforce their new strategic commitments with financial assistance.**
- **Some areas have been passionate and determined in their attempts to use such funding in the most effective manner and commission or support services. This often depends on passionate individuals working within health who understand the role that preventative actions can play in enabling them to meet clinical targets.**

The report has highlighted the stark health impacts that living in a cold home can have, and the national policy acceptance of the issue. It examined the extent to which the cost and ill health caused by fuel poverty and poor housing has been acted upon by key local and national actors.

Increasingly **limited funding** across local authorities (including public health) and health puts the ability of some areas to replicate existing good practice actions and even to maintain local referral relationships at **risk**. It can **jeopardise the continued delivery** of existing schemes.

Creating a local business case for support

Multiple types of evidence have been submitted and collated in order to secure support and/or investment from health and public health bodies for initiatives that look to tackle cold-related ill health.

Evidence centres on **identified local priorities** and **evidence of need within a local population**, as well as **feedback from ongoing or previous scheme delivery**. Importantly, local public health teams or CCGs themselves have often had a **significant role** to play in the identification and collation of such data in the first place, prior to any funding being granted.

Funding trends in 2017/18 were much more likely to be static or decreasing in comparison to the previous year(s). Fuding security could differ by funding type (i.e. capital/revenue).

46.9% of those surveyed said that their level of funding had remained the same as the previous year. But, for over a third (36.7%), it had decreased. For 20.4%, the reduction in funding was significant.

For 6.1% ,funding had increased to some extent. Just 8.8% reported a relatively stable funding situation with three schemes reporting that their funding was secure up until 2019 and one with funding secure until 2020/2021.

37.7%) of respondents said their funding would discontinue at the end of the current financial year (2017/ 2018).

6.7% of schemes surveyed had already had their funding stream discontinued between March and September of 2017.

4.4% were due to have their funding discontinued by the end of 2017.

33% had relied on submitted anecdotal evidence from scheme delivery.

33% had submitted evidence that demonstrated the need to tackle cold-related ill health was already an accepted local priority, e.g. through a JSNA or its equivalent.

31% had submitted evidence that the need to tackle cold-related ill health had been identified nationally (such as the NICE NG6 guideline).

19.1% had presented the results of an internal evaluation.

11.9% had presented evidence from an external evaluation.

7.1% had drawn on evidence from studies using self-reported changes as measurement metrics.

4.8% had provided a review of published studies and a critical assessment of their methodologies.

2.4% had provided evidence from studies using quantitative/case-control/population-level methods.

4.8% of respondents noted that no submission/presentation/ critical evaluation of health-related evidence was required.

When presenting a business case for investment to tackle cold-related ill health, being able to **tell stories across multiple narratives** that use **different strands of evidence** work best.

This will involve:

Highlighting local Public Health Framework (PHOF) performance indicators.

Working to understand what those performance indicators might mean for local residents deemed at risk.

Looking at the number of hospital and GP admissions for health conditions that can be exacerbated by the cold.

Correlating PHOF performance indicators and admissions numbers with local data on fuel poverty prevalence, property and demographic data.

Calculating/estimating potential cost savings for the health sector of delivering energy efficiency interventions.

Telling the story of what life is like for those who are in fuel poverty or who are suffering from cold-related ill health.

Using anecdotal data from existing scheme delivery or evaluations to really put a human face onto a case for support.

There is much that can be done with data that is already held by local authorities and some local health bodies – often the issue is being able to engage and identify the individuals who can access, interpret and present that data according to the interests of the various bodies involved.

Public health analysts are experts in identifying priority areas of need within their population, and should be engaged when building a local case for support. Approaching a CCG to ask about their main priorities and who their most at-risk groups might be can be an effective means of establishing how to develop and present a case for support, and to identify the most appropriate target groups for cross-sector initiatives.

The tools available to local public health teams to allow them to identify gaps in provision and the issues they need to be prioritising locally are not intended to benchmark performance but inform local strategies. However, where fuel poverty is not considered a priority locally, this can affect the level and extent and support that public health teams are willing or able to provide (as can the quality of relationships locally and their ability to secure the engagement of key, strategic individuals).

Persistence in the face of slow change should continue to ensure the issue of cold-related ill health is acknowledged locally as a priority health prevention issue. Ultimately, it is essential that relationships exist locally between key stakeholders that can facilitate the presentation and dissemination of the evidence to relevant local bodies. Often, however, the unavailability of data from the NHS or Department for Work and Pensions (DWP) can limit significantly the targeting and evaluation activities that programme deliverers can undertake.

The majority (62%) of survey respondents revealed that they had been unsuccessful in securing funding from health agencies in the past, or were a health agency that had decided now to award funding. Unwillingness to support initiatives to tackle cold-related ill health from within the health sector may come from the tensions created by **evidence not being tailored or presented to those bodies in ways that speaks to their priorities (and in their language)**. It may also be a result of those bodies being **unwilling (or indeed, unable) at this stage to integrate a greater focus on health prevention into their commissioning decisions** and service delivery.

Whilst there are issues with the fragmented nature of the evidence base around cold homes and health to date, **current available evidence is and has been enough to engender official recognition of the problem** by health-related bodies such as the National Institute for Health and Care Excellence (NICE), Public Health England (PHE), and wider health-based institutions such as the Royal College of General Practitioners (RCGP), Royal College of Nursing (RCN), Royal College of Midwives and Faculty of Public Health (FPH). Cold homes have been shown to impact upon **excess winter morbidity and mortality; cardiovascular and respiratory disease; mental health; and other health conditions**. These health conditions can affect and have different detrimental impacts on all age groups and, as such, are **cross-generational**.

At the same time, this research has highlighted some undeniable gaps within the evidence base between the relationship between cold homes and health. This includes fully understanding those areas where NHS data-sharing is having a discernible difference to the targeting of health issues associated with cold homes.

The National Institute for Health and Care Excellence (NICE) evidence review further identified gaps including a "lack of rigorous, UK-based epidemiological evidence on the degree to which different housing energy efficiency interventions modify the risk of cold temperature-related deaths and illnesses" [125]. This speaks to the need for a more comprehensive, national-level health and energy efficiency programme of delivery and evaluation.

The **tangible savings** that can be achieved by delivering energy efficiency interventions therefore need to be explored on a **wider scale**. Given that fuel poverty is a multi-faceted issue that crosses multiple departments and policy areas, a **centrally coordinated** response to **fill this gap** in evidence could be what is needed.

Evaluating schemes and measuring outcomes

The majority of schemes (74%) were currently evaluating a scheme, or had already done so.

The most commonly evaluated outcomes tended to relate specifically to household level impact. Fewer cases had measured outcomes associated with service use and savings to society (including NHS).

Tools like the **Health Impacts of Domestic Energy Efficiency (HIDEEM) model** (which is used to calculate the health impacts of energy efficiency interventions) and the BRE's **Housing Health Cost Calculator** could prove invaluable to fuel poverty scheme providers that are required to provide evidence such as returns on investment or quantified cost savings and clinical outcomes (e.g. metrics like QALY).

Schemes have also used and produced **free resources** that can be consulted for calculating **Social Returns on Investment**, to work out cost savings and the potential benefits of investing in energy efficiency in their locality.[151]

68.8% were measuring household personal satisfaction with physical and general well-being.

68.8% were measuring household energy savings.

59.4% were measuring impact on pre-existing health conditions.

56.3% were measuing ability to heat the home.

37.5% were measuring local hospital admissions.

31.3% were measuing GP visits.

18.8% were measuring savings to the health sector.

There are calculations that local authorities can do using data that they already hold, such as **fuel poverty, excess winter deaths and benefits uptake statistics, and data on property condition and tenure.**

Research published by Lewisham council and the **toolkits** that have been produced by Cornwall Council and Citizens Advice share best practice case studies from existing schemes and provide specific guidance around the kinds of evaluation methods that can be used.[146, 150]

This does not however address the inconsistent application of evaluation methodologies across the country which mean outcomes cannot be measured at scale).

Challenges to evidence of the health benefits of fuel poverty schemes

Challenges were often encountered in **demonstrating improvements to physical health, or impact** on **local and national trends** (such as excess winter deaths and mortality). Such evidence requirements point to a wider epistemological debate about what constitutes **'good evidence'.** Health research has traditionally aligned itself to scientific methods of evaluation, such as clinical randomised control trials to assess impact on clinical and acute outcomes. It could be argued that the move towards **prevention and integration** in the health sector may require it to **shift** its position and to **consider alternative methods** more appropriate to the **measurement of social determinants of health**.

Schemes that have taken steps to measure and demonstrate outcomes that can speak to the clinical interests of health bodies have encountered **difficulties in sharing health data**.

Cross-sector integration and scheme delivery

This research sought to understand whether there are particular health- or public health-based concerns that might affect how a scheme that looks to address cold-related ill health is delivered (and to whom), and how far delivery that responds to such concerns is affected by other issues, such as the nature of funding that is available. Overall, schemes tended to **focus targeting on those health conditions that have been most strongly linked with the effects of living in a cold home** within the current evidence base (86.4% of those surveyed).

To develop targeting criteria, schemes built on a combination of **information gathered** from the evidence base, particular **referral relationships** that they had in place, and the **requirements specified by scheme funders**. Some schemes had tailored service delivery to make sure they targeted priority groups for CCGs, in order to reduce hospital admissions. For public health teams, the emphasis was placed upon the need to address the extent of cold-related ill health across the population, rather than restricting interventions to narrowly defined groups.

Social determinants are extremely complex and the nature of interventions designed to address them, such as capital measures or advice-based programmes, do not lend themselves easily to more clinical approaches to evaluation.

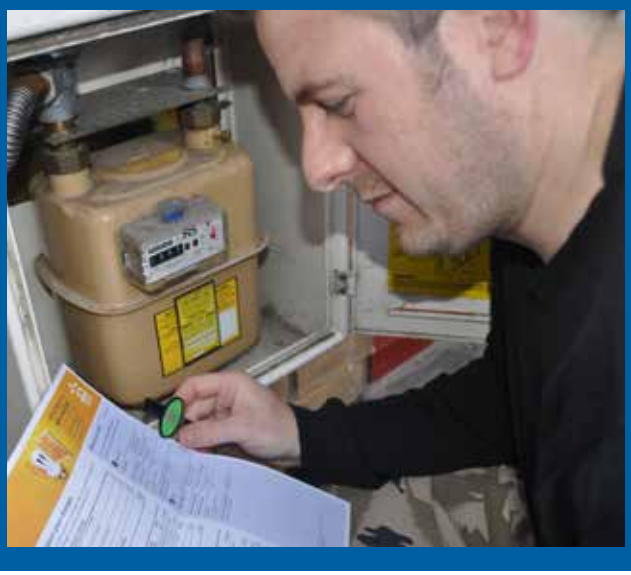
Creating 'budgetary space' to allow for investment of resources in prevention, coupled with appropriately defined outcomes and associated methods for evaluation that will not jeopardise acute spending in the short-term could be one way of overcoming this.

This in turn, could act to increase health sector confidence in and acceptance of evidence on outcomes that cannot be easily demonstrated in clinical terms.

These barriers were felt to be extremely frustrating at a time when schemes are being required to evidence clinical impact, but unable to access tools that could enable them to do so.

Adequate data-sharing mechanisms that allow for the tracking of patient service use and outcomes are required.

There is a role here for NHS Digital, and those involved in the agreement of data-sharing arrangements locally, in aligning their regulations with the evidence demands being made by health sector organisations.



Targeting cardiovascular diease (52.3%)

Targeting heart disease (52.3%)

Targeting strokes (52.3%)

Targeting asthma (52.3%)

Targeting bronchitis (52.3%)

Targeting pneumonia (50%)

Targeting other circulatory diseases (47.7%)

Targeting other respiratory diseases (47.7%)

Targeting mental health conditions (45.6%)

Recognising that the impacts of living in fuel poverty and experiencing cold temperatures at home fall beyond the energy policy realm, previous departmental funding schemes have been successful in enabling cross-sector collaborations locally (such as the Warm Homes, Healthy People Programme). Reductions in funding for such programmes have meant that available resources from within a single department have had to be **retargeted at those most relevant to their separate rather than shared objectives.**

Individual departments, such as BEIS, have made **notable efforts** to weave a **health perspective into key documents**, such as the Fuel Poverty Strategy (2015) in England. This has involved building good relationships with branches of the Department of Health and Social Care, like Public Health England. Whilst it is important to continue to ensure that those resources that are currently available through mechanisms such as ECO are targeted at those most severely suffering from fuel poverty, this does mean that there is a **limit with regards to how far the mechanisms offered for addressing cold homes through the energy sector can align with public health thinking on the issue**.

This speaks to the **tensions that can occur between targeting for fuel poverty and targeting for public health**, and suggests that there is **room for other key players beyond energy and housing** to participate in joined-up actions. Case studies considered within this report suggest that the use of **continuous and complementary cross-sector funding streams** could provide a means of bringing together the targeting and strategic aims of sectors like energy, health and local government. Addressing cold-related ill health becomes more of an issue of **improving energy efficiency across the board.**

Recommendations for replication of local good practice

Recommendations for (A) Scheme Providers	Who Should Act
Recommendation 1: Local delivery programmes should follow NICE NG6 guidelines to develop one recognised local hub and to identify and engage relevant individuals within health, public health, and housing to work together to achieve outcomes relevant to the priorities of all.	**Local public health** **Local authorities** **CVS** **Scheme developers**
Recommendation 2: Local delivery programmes should first identify the outcomes, pathways and language necessary to link local identified health priorities with national strategic aims prior to engaging health sector professionals. Delivery programmes should engage local public health teams as an ideal place to start the relationship.	**Scheme developers,** **Local public health** **Local authorities** **CVS**
Recommendation 3: Local public health practitioners should be persistent in making their local case for addressing cold-related ill health to secure senior local public health buy-in. Practitioners and directors of public health alike should be persistent in using local top- and lower- level routes into health bodies to engage relevant colleagues (health and wellbeing boards, CCGs and NHS professionals).	**Scheme developers,** **Local public health** **Local authorities** **CVS**
Recommendation 4: Health commissioning bodies should review new ways of using existing mechanisms to ensure more consistent delivery in line with the NG6 and the NHS Five Year Forward View. This could include: • the establishment of joint commissioning agreements with local authority partners that would allow schemes relevant to the priorities of both to be delivered. It might also include; • applying innovative uses of Better Care Fund monies to pilot and deliver integrated, prevention-oriented services locally or; • using withheld funds more innovatively through, for example, hospital readmission fines, ring-fencing such to support local social prescription services that can address the social and environmental causes of those hospital re-admissions.	**Local public health** **Local authorities** **CVS** **CCG** **NHS** **NHSE** **PH** **PHE**
Recommendation 5: Health sector bodies should review how they incorporate the requirements of the Social Value Act into their service delivery, and to support the wider roll-out of social prescribing 'plus' models that include initiatives to tackle cold-related ill health.	**Any health body subject to PCR2015** **Crown Commercial Services** **DHSC**
Recommendation 6: Delivery programmes building and evidencing a case for support should compile the full set of data available to them e.g. fuel poverty statistics, tenure data, PHOF performance indicators, identifying groups at risk of cold-related ill health locally, hospital admissions data and GP/CCG performance under relevant Quality Outcomes Framework (QOF) indicators. They should look to approach public health and CCG analysts to access some of this data, and to help analyse local trends and understand their key priorities.	**Scheme developers** **CCGs** **Local public health** **Local authorities**
Recommendation 7: Local areas looking to replicate good practice evaluations of relevant schemes should consider use of existing and available toolkits, such as those produced by Lewisham Council, the Centre for Sustainable Energy and Cornwall Council/Citizens Advice: **www.citizensadvice.org.uk/cold-homes-toolkit/**	**Scheme developers**

Recommendations for (B) Policy-makers	Who Should Act
Recommendation 8: Long-term monitoring and evaluation is recommended at a national scale to assess how far appropriate support provided through social care budgets to address the social determinants of health, including homes, is alleviating corresponding pressures within the NHS. Minimum evaluation criteria to monitor and evaluate scheme delivery should be produced, thus standardising evaluation activities across the UK. The introduction of a new system of performance monitoring that could adequately and appropriately compare cold-related ill health prevention schemes and activities should be considered. This could take into account feedback on Public Health Outcomes Framework (PHOF) performance; the content and delivery progress of Sustainability and Transformation Plans (STPs); performance under the Quality Outcomes Framework; and housing and energy-related indicators, such as those provided through HECA.	**NHS Digital** **NHSE** **DHSC** **MHCLG** **BEIS** **PHE** **HMT**
Recommendation 9: The Department for Business, Energy and Industrial Strategy should continue work to fully monetise the health benefits of meeting fuel poverty commitments. BEIS should also make the improved HIDEEM model available to local practitioners as soon as possible and to publish appropriate user guidance alongside.	**BEIS** **HMT** **DHSC** **DEFRA** **DExEU** **DoE** **HO**
Recommendation 10: The perceived constraints of the regulations surrounding data-sharing should be challenged, enabling greater data-sharing in a standardised and regulated fashion between health and local delivery bodies. This will facilitate monitoring of intervention outcomes as well as help to identify households to target for support.	**BEIS** **NHS Digital** **DHSC** **MHCLG** **BEIS**
Recommendation 11: NICE, with support from PHE, NHSE and BEIS should continue to promote and encourage implementation of its NG6 guidance across the board, and continue to produce and disseminate resources and shared learnings to facilitate the development of local, single point of contact health and housing services. In particular, NICE should carry out further promotional activities with a specific focus on embedding NG6 in Sustainability and Transformation Planning within the NHS.	**NICE** **PHE** **NHSE** **BEIS**
Recommendation 12: A new ministerial position or Cabinet Office-led working group would support cross-departmental working, join up national frameworks and help co-ordinate national actions which can support the implementation of actions to address ill health from cold homes.	**Cabinet Office** **DHSC** **MHCLG** **BEIS**
Recommendation 13: In the short-term, consideration should be given to the re-establishment of government-funded grants to encourage the activities previously undertaken via DoH's Warm Homes Healthy People Fund (WHHP) or DECC's previous Health Booster Fund to act as a pump priming accelerator to promote long-term cross organisational working.	**DHSC** **BEIS** **PHE** **HMT**
Recommendation 14: Building on the learnings from Vanguard Sites, it should be considered how the NHS can be mandated to change the way it delivers its services to focus more on prevention and service integration, as set out in the NHS Five Year Forward View 2014. An escalating percentage of healthcare budgets could be mandated and ring-fenced for use on preventative health care.	**DHSC** **Cabinet Office**
Recommendation 15: It is recommended that Health and Wellbeing Boards should be given limited executive powers to enforce the actions deemed necessary in the local JSNA as they are mandated to produce a joint strategy but have no powers to enforce a plan or commission actions for addressing identified needs. They should also be required to have due regard to the enforcement of local housing standards and mandatory participation via relevant Environmental Health teams.	**DHSC** **Cabinet Office** **MHCLG**

As well as the recommendations noted above, the following section summarises other key issues that must be taken to fully capture the opportunities to reduce the cost and suffering caused by cold homes.

- Investment from CCGs in terms of providing revenue and/or capital funding for fuel poverty interventions is not widespread at a national level.
- In cases where CCGs have both embraced new imperatives to bring health prevention to the forefront of their strategies and been able to reinforce their new strategic commitments with financial assistance, we have seen examples of innovation and the delivery of actions to address cold-related ill health that cross sectors, and which demonstrate the benefits that can arise from the joint-commissioning of services.
- The likelihood of such actions being taken forward depends on engaged and passionate individuals working within health who understands the social determinants of health and the role preventative actions can play in enabling them to meet clinical targets.
- An engaged local public health team can act as broker, coordinator or funder of actions that cross sectors.
- Local public health teams can apply data insights to understand local public health priorities and to identify where there are gaps in provision locally.
- They can act upon such insights by bringing local actors together to encourage strategic action and enable referral mechanisms to be built.
- When funding becomes available to them, our research has found local public health teams can and will act to directly commission initiatives to tackle fuel poverty and cold-related ill health.
- If this funding environment changes, the nature of the services that they can provide might also change, as can the ways in which they attempt to continue resourcing actions.

Extent of engagement from health-related bodies in cold homes initiatives

Of health-related bodies, this report has found that local public health teams are those who are most likely to be commissioning and investing in schemes. Nevertheless, where appropriate relationships are in place locally, and policy levers at a national level are able to encourage and emphasise a focus on health prevention and integration, there is potential for CCGs, HWBs and NHS bodies to be engaged on the issue.

Although data collected through the call for evidence indicated that fuel poverty initiatives are receiving very little financial support from NHS bodies, there are examples of NHS-funded actions that cross-sector divisions and emphasise the multiple benefits of energy efficiency. Once again, dedicated individuals were able to make the case for investment by highlighting the benefits in terms of encouraging environmental sustainability and on potentially alleviating some of the pressures faced by particular clinical divisions within the hospital.

The research repeatedly encountered a strong and passionate belief on the part of local public health practitioners that tackling fuel poverty and cold-related ill health is a major aspect of being able to deliver the public health imperative of reducing health inequalities. Teamed with the potential cost-savings to the NHS and the relief of excess winter pressures, the possibilities offered by such initiatives further tie in with new health-sector imperatives to increase sustainability, transform services and deliver meaningful actions on prevention.

Key to taking forward such actions is being able to identify engaged and motivated individuals across the range of bodies involved.

There were frequent demonstrations of innovation and a willingness to use existing policy levers to apply imperatives for integrating health-prevention into service delivery and take action to tackle the social determinants of health from a range of actors including CCGs, local NHS bodies and local public health teams. When such a willingness has been combined with the availability of funds that can be used to support actions on health inequalities, some areas have been passionate and determined in their attempts to use such funding in the most effective manner and commission or support services.

Good practice examples highlighted within this report show that commissioning from integrated budgets, or using existing resources in innovative ways and in ways that speak to national NHS priorities is possible. On the one hand, there is therefore scope for local areas that are not currently delivering cross-sector fuel poverty and cold homes initiatives to consider replicating those ideas. Implementation would need to be adapted and tailored to local available mechanisms and priorities, but these examples have shown that in a lot of cases, having the will to act goes a long way to being able to.

However, discussions with stakeholders revealed that financial pressures upon their organisations in terms of budget cuts, the end of ring-fenced grants and the need to continue to meet the cost of clinical demands can (and in some cases, has) seriously compromised their ability to continue to commission and/or fund such services going into the future.

Creating a local business case for support

This research highlighted the multiple types of evidence that have been submitted and collated in order to secure support and/or investment from health and public health bodies for initiatives that look to tackle cold-related ill health.

Often, evidence centres on identified local priorities and evidence of need within a local population, as well as feedback from ongoing or previous scheme delivery. Importantly, local public health teams or CCGs themselves have often had a significant role to play in the identification and collation of such data in the first place, prior to any funding being granted.

It is not necessarily the case that schemes need to carry out such analyses alone. Public health analysts are experts in identifying priority areas of needs within their population, and should be engaged when building a local case for support. Sometimes, approaching a CCG to ask about their main priorities and who their most at-risk groups might be can be an effective means of establishing how to develop and present your case for support, and to identify the most appropriate target groups for work that would apply across sectors.

In general, when presenting a business case for investment to tackle cold-related ill health, being able to tell stories across multiple narratives that use different strands of evidence works best.

This might involve highlighting local PHOF performance indicators, but also working to understand what those performance indicators might mean for local residents who are at risk in terms of hospital and GP admissions for health conditions that can be exacerbated by the cold, and correlating that with local data on fuel poverty prevalence, property and demographic data.

It can also be useful to focus on being able to calculate potential cost savings for the health sector of delivering energy efficiency interventions.

In cases where there is an unwillingness to support initiatives to tackle cold-related ill health from within the health sector, this may come from the tensions created by evidence not being tailored or presented to those bodies in ways that speaks to their priorities (and in their language). However, it may also be a result of those bodies being unwilling (or indeed, unable) at this stage to integrate a greater focus on health prevention into their commissioning decisions and service delivery. Where this is the case, persistence in the face of slow change should continue to ensure the issue of cold-related ill health is continually acknowledged locally as a high priority health prevention issue. Ultimately, it is essential that relationships exist locally between key stakeholders that can facilitate the presentation and dissemination of the evidence to relevant local bodies.

Despite the links between cold homes and health being well evidenced, further evidence on the links between cold homes and health should be sought.

The tangible savings that can be achieved by delivering energy efficiency interventionstherefore need to be explored on a wider scale. Given that fuel poverty is a multi-faceted issue that crosses multiple departments and policy areas, a centrally coordinated response to fill this gap in evidence could be what is needed.

There is much that can be done with data that is already held by local authorities and some local health bodies – sometimes the issue is being able to engage and identify the individuals who can access, interpret and present that data according to the interests of the various bodies involved.

At the same time, telling the story of what life is like for those who are in fuel poverty or who are suffering from cold-related ill health can help to triangulate efforts to engage people by presenting variations of the same narrative. Such narratives use anecdotal data from existing scheme delivery or evaluations to really put a human face onto their case for support. The emotional impact that can result from combining statistical data with in-depth, qualitative stories of need should not be underestimated.

It can also be useful to focus on being able to calculate potential cost savings for the health sector of delivering energy efficiency interventions.

The link between external and more comfortable internal temperatures in homes needs to be further explored.

The links between reductions in bills and energy arrears and how this can increase spending within poorer communities on other essential goods and prompt further health benefits (i.e. more nutritious meals etc.) are not well understood.

There is also limited evidence on how the creation of a healthier environment for school children can lead in the longer term to a healthier/more productive workforce.

Whilst it can be demonstrated that reductions in energy costs can lead to less stress and better mental health for occupants, the reduced costs to health services in these areas are not defined.

Neither are the reduced costs to social care of keeping people living in their homes.

Finally, the cost effectiveness of free interventions (such as advice) which can also create less damp and mould growth within homes is not easily monetised using current techniques.

This could lead to these cost effective services being ignored despite their clear value.

Evaluating schemes and measuring outcomes

With regards to scheme evaluation and outcome measurement, key informants highlighted a number of challenges to the evidencing of health benefits and outcomes associated with fuel poverty schemes. This was particularly the case in terms of demonstrating improvements to physical health, or impact on local and national trends (such as excess winter deaths and mortality).

Challenges to the evaluation of schemes with regards to defining appropriate outcomes and their measurement points to a wider epistemological debate about what constitutes 'good evidence'. Health research has traditionally aligned itself to scientific methods of evaluation, such as clinical randomised control trials to assess impact on clinical and acute outcomes. However, it could be argued that the move towards prevention and integration in the health sector may require it to shift its position and to consider alternative methods more appropriate to the measurement of social determinants of health. Social determinants are extremely complex and the nature of interventions designed to address them, such as capital measures or advice-based programmes, do not lend themselves easily to more clinical approaches to evaluation.

Social determinants are extremely complex and the nature of interventions designed to address them, such as capital measures or advice-based programmes, do not lend themselves easily to more clinical approaches to evaluation.

Tools such as the Health Impacts of Domestic Energy Efficiency (HIDEEM) model which is used to calculate the health impacts of energy efficiency interventions and the BRE's Housing Health Cost Calculator could prove invaluable to fuel poverty scheme providers that are required to provide evidence such as returns on investment or quantified cost savings and clinical outcomes (e.g. metrics like QALY).

At other times, schemes have used and produced free resources that can be consulted for calculating Social Returns on Investment, to work out cost savings and the potential benefits of investing in energy efficiency in their locality.

There are furthermore calculations that local authorities can do using data that they already hold, such as fuel poverty, excess winter deaths and benefits uptake statistics, and data on property condition and tenure.

Research published by Lewisham council and the toolkits that have been produced by Cornwall Council and Citizens Advice share best practice case studies from existing schemes and do provide specific guidance around and the kinds of evaluation methods that can be used (though they do not address the inconsistent application of evaluation methodologies across the country which mean outcomes cannot be measured at scale).

The points above relate to a possible need to separate demands to meet immediate pressures in the acute sector from the shift towards health prevention, andwhere health bodies may fear that already stretched resources risk being diverted from the acute sector into prevention. This could produce a risk-averse culture that is detrimental to the financing and support of cold homes and fuel poverty-related interventions.

This research suggests that creating 'budgetary space' to allow for investment of resources in prevention, coupled with appropriately definedoutcomes and associated methods for evaluation that will not jeopardise acute spending in the short-term could be one way of overcoming this. This in turn, could act to increase health sector confidence in and acceptance of evidence on outcomes that cannot be easily demonstrated in clinical terms.

Schemes that have taken steps to measure and demonstrate outcomes that can speak to the clinical interests of health bodies have often encountered difficulties in sharing health data. These barriers were felt to be extremely frustrating at a time when schemes are being required to evidence clinical impact, but unable to access tools that could enable them to do so.

This experience suggests that health bodies (who are being encouraged to demonstrate transformations in how they deliver integrated services with a focus on health prevention) still require outcome measurements that can demonstrate how investment in this area will help to alleviate pressures in the clinical/acute sector. There remains an apparent gap in the provision of the appropriate mechanisms that would enable scheme providers to measure those required outcomes, and this research would recommend that how this could be provided should be considered for future development.

Adequate data-sharing mechanisms that allow for the tracking of patient service use and outcomes are required. There is a possible role here for NHS Digital, and those involved in the agreement of data-sharing arrangements locally, in aligning their regulations with the evidence demands being made by health sector organisations. The benefits of doing so become evident when looking at examples of where cross-sector working and adequate local data-sharing mechanisms have the potential to allow for clinical outcomes measurement.

Cross-sector integration and scheme delivery

This report sought to understand whether there are particular health- or public health-based concerns that might affect how a scheme that looks to address cold-related ill health is delivered (and to whom), and how far delivery that responds to such concerns is affected by other issues, such as the nature of funding that is available.

The requirements of funding streams that were available did dictate to some extent the kind of help they were able to offer different groups of people, and whether interventions were targeted at those living in more severe fuel poverty or those representing wider vulnerabilities to cold-related ill health. This speaks to the tensions that can occur between targeting for fuel poverty and targeting for public health, and suggests that there is room for other key players beyond energy and housing to participate in joined-up actions. Case studies considered within this report suggest that the use of continuous and complementary cross-sector funding streams could provide a means of bringing together the targeting and strategic aims of sectors like energy and health.

The most common reason for schemes targeting specific health conditions was a combination of information gathered from the evidence base, particular referral relationships that they had been able to build, and the requirements specified by scheme funders. Some schemes had tailored service delivery to make sure it targeted priority groups for CCGs in order to reduce hospital admissions for at-risk groups. For public health teams, the emphasis was very much placed upon the need to address the extent of cold-related ill health across the population, rather than restricting interventions to narrowly defined groups.

The research further sought to understand how far national levers are enabling local integration.

Individual departments, such as BEIS, have made notable efforts to weave a health perspective into key documents, such as the Fuel Poverty Strategy in England. This has involved building good relationships with branches of the Department of Health and Social Care, like Public Health England. Recognising that the impacts of living in fuel poverty and experiencing cold temperatures at home fall beyond the energy policy realm, previous departmental funding schemes have been able successful in enabling cross-sector collaborations locally (such as the Warm Homes, Healthy People Programme).

Reductions in funding for such programmes have meant that available resources from within a single department have had to be retargeted at those most relevant to their objectives.

Whilst it is important to continue to ensure that those resources that are currently available through mechanisms such as ECO are targeted at those most severely suffering from fuel poverty, this does mean that there is a limit with regards to how far the mechanisms offered for addressing cold homes through the energy sector can align with public health thinking on the issue. Addressing cold-related ill health therefore becomes more of an issue of improving energy efficiency across the board.

The stakeholders that we spoke withfelt that, given public health priorities tend to be locally determined, a system of national benchmarking might not be the most appropriate mechanism through which to encourage further action. Any attempts to do so would require the development of a new set of key performance indicators to sit alongside Public Health Outcomes Framework Indicators, and would need to ensure performance monitoring could be adequately enforced (and resourced).

It was noted by stakeholders that overlaying HECA reports with other datasets could be a useful means of benchmarking areas holistically, and in identifying the key players within a locality that are either driving or letting performance down.

There would, however, need to be adequate penalties for non-compliance, and new requirements would need adequate and appropriate levels of revenue and capital funding to make sure money was not simply moved from elsewhere to the detriment of other services.

The national picture of local interventions to address cold-related ill health across energy, housing, and health appears to be fragmented, under-resourced and with limited scope for benchmarking or the enforcement of performance monitoring.

This is despite the significant potential for addressing the issue contained within the promises provided by certain policies and top-level guidance (such as the NHS Five Year Forward View and its focus on health prevention and integration, the inclusion of indicators relevant to cold-related ill health under the Public Health Outcomes Framework, the NICE NG guideline, and requirements to report on progress to achieve energy efficiency under HECA, amongst others).

Although existing research and toolkits have been able to identify examples of good practice actions being delivered to address the health impacts of cold homes, there still exists a postcode lottery that results in some households being able to benefit from health-related fuel poverty interventions and other who will not.

APPENDIX A: STAKEHOLDER WORKSHOP RESPONSES

At the regional stakeholder workshops, NEA posed a number of questions to delegates on issues that had arisen during the research process and the areas where they felt more or differentactions and solutions were needed to address key barriers. This final recommendations section presents reflections from stakeholders and considers:

- The information and tools required
- Whether there should be a statutory imperative for cold-related ill health prevention
- Whether fuel poverty should become a statutory requirement for local authorities
- Barriers to delivery beyond the collation and provision of evidence
- The extent to which fuel poverty is recognised as an issue that should be addressed at a national and/or local level in its own right.

What information and tools are needed?

Stakeholders identified a need for greater data-matching and sharing locally. This would enable appropriate data collection and ability to provide evidence of post-intervention impacts and outcomes as required by commissioning bodies. More work needs to be done around aligning person-centred data that is held across different local and national government departments with the property-centred data held by local authorities. To do this, good relationships with information governance staff are required.

Sharing data and good practice was seen to be critical. But, for it to be successful, the support of specialist data teams needs to be harnessed. Some data officers are more inclined to see the benefit of such a process and therefore invest resources in it, whilst others will not. The process of relationship building and establishing protocols that can be implemented at other similar organisations are needed, but can be time-consuming for organisations already resource-stretched.

Concerns were raised that the data needs to be strong enough at a local level in order to have an impact. Small data sets that use linear extrapolation from the national data sets and are then downsized to local population size may not be representative. Whilst other data is more accurate at household level (such as fuel poverty assessment tools and EPC data), they are much more time-consuming and resource-intensive to use for purposes of targeting and/or outcomes measurement.

What information and tools are needed?

A need was identified for a data-set tool which could be widely accessed across the sector and which would include information on: PHOF indicators, observatory statistics, excess winter deaths, energy performance, fuel poverty statistics, and relevant income and benefit receipt data from the DWP. Such a development could produce opportunities for more evaluation to be done at scale, should NHS digital be able to use data from existing interventions to observe impact across multiple localities.

Limitations on what is possible in terms of evaluation and access to data is perceived as inefficient by stakeholders who felt that time was often wasted creating evaluation tools that were already available, or could be, but they had no or limited access. This was felt particularly strongly in relation to the evaluation of social return on investment (SROI) and quantifiable savings to health and social care. Whilst many schemes are using the NICE guidance as a model for delivery, there remains a need for standardised evaluation models that can provide, in the words of one stakeholder, ***"generalised health outcomes produced in monetary terms across a range of measures – SROI, quality adjusted life year (QALY), health and wellbeing scores, etc."***

There was frustration at being required to provide health impact data to convince health bodies to invest or support actions. This was especially the case given that fuel poverty and cold homes are already recognised as an issue by NICE, who have issued a guideline and quality standard. They argued that money invested in making such cases for support could be better spent elsewhere. This perhaps underlines the competing yet paradoxically complementary nature of priorities of different sectors operating in a space characterised by limited resources and difficult choices over which services receive investment or funding.

Would public health benchmarking be an incentive to encourage action?

Some stakeholders felt that benchmarking public health teams based on their performance against key PHOF indicators at a national scale would not necessarily encourage further action given that public health priorities are locally determined. Whilst areas would wish to avoid being labelled as poorly performing (which could act as a catalyst for action), it was generally felt that such a strategy would not work unless it were made compulsory for lower performing teams to implement actions to address areas in which they were failing.

Integration or overlaying of complementary data sets, such as that contained within HECA reports, could be beneficial to achieving most appropriate and reflective benchmarking of local areas. It was argued that a measure of performance against an established delivery model in terms of health consequences and clinical best practice, as well as associated areas of housing and energy, would be required. Stakeholders were keen to move beyond the current perceived postcode lottery situation in terms of areas where CCGs have been engaged in prevention and are supporting local action, and those that are not. It was therefore felt that benchmarking of CCGs would be useful in enabling this and engendering more action across the board.

It was noted that in many ways the drive for action should also be at a national level rather than solely of the remit of local public health. Stakeholders argued for a need to implicate industry, such as energy suppliers, to develop new fairly distributed funding options to help tackle the issue. It was suggested that funding could be considered as a way to leverage CCG participation, though in the current economic context how feasible this would be remains unknown. To encourage local agencies to take action, it is recommended that the demonstration of tangible savings should be explored more broadly to include other local and interconnected priority areas. This would highlight the mutual benefit of addressing cold homes to other agendas.

A statutory imperative to focus on prevention for the health sector?

This would involve shifting to a **legal requirement rather than a point of guidance**. There was some support for this type of approach, and the view that such an imperative would make a significant difference to being able to enforce actions locally.

Furthermore, nationally mandating action would mean a requirement to produce national evaluation and assessment frameworks, which could allow intervention impacts to be evidenced at scale and therefore support those required to collate such evidence.

A strong narrative for bringing key actors from multiple levels of government together and highlighting responsibility across sectors would provide the necessary context and message to establish a common mission. As one stakeholder observed: ***"it needs to be stated bluntly: cold homes and fuel poverty cause poor health and this is what each area should do to meet its prevention duty."***

It was noted that local variation in terms of how structures and funding mechanisms, such as the Better Care Fund, are operated, interpreted and managed, and the often locally determined extent of action would present barriers.

In addition, public health interventions themselves are linked to those that have already been legislated for, and without sufficient budgets being provided to public health teams, mandatory requirements to deliver services would be somewhat redundant.

There were also concerns around how such requirements would be enforced practically and, were additional funding to be made available, this would need to focus on the longer term rather than the 'quick-hits' which seem to be the present focus.

Clear drivers that require a focus on prevention appear to be limited. Looking beyond acute care and patient flow is often not an option considered by health practitioners, either because it is not recognised as being required or because the policy emphasis is not present.

For example, policy misalignment and a continued focus on spending to bridge deficits are active barriers to more prevention-focused action.

Stakeholders engaged by the research argued that separate budgets should be considered for enabling new, prevention-focused initiatives to be implemented, rather than directing funds from existing acute/clinical budgets.

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Action for Warm Homes

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