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Local Health and Social Care Responses to Implementing the National Cold Weather Plan

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Local Health and Social Care Responses to Implementing the National Cold Weather Plan

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Abstract

Background

The Cold Weather Plan (CWP) for England was launched by the Department of Health in 2011 to prevent avoidable harm to health by cold weather by enabling individuals to prepare and respond appropriately. This study sought the views of local decision makers involved in the implementation of the CWP in the winter of 2012/13 to establish the effects of the CWP on local planning. It was part of a multi-component independent evaluation of the CWP.

Methods

Ten local authority areas were purposively sampled which varied in level of deprivation and urbanism. Fifty-two semi-structured interviews were held with health and social care managers involved in local planning between November 2012 and May 2013.

Results

Thematic analysis revealed that the CWP was considered a useful framework to formalise working arrangements between agencies though local leadership varied across localities. There were difficulties in engaging general practitioners, differences in defining vulnerable individuals and a lack of performance monitoring mechanisms.

Conclusions

The CWP was welcomed by local health and social care managers, and improved proactive winter preparedness. Areas for improvement include better integration with general practice, and targeting resources at socially isolated individuals in cold homes with specific interventions aimed at reducing social isolation and building community resilience.

Introduction

The Department of Health (DH) launched the Cold Weather Plan (CWP) in 2011 with the aim of preventing avoidable harm to health by alerting people to the negative health effects of cold weather, and enabling them and local public agencies to prepare and respond appropriately.¹ This annual plan, now the responsibility of Public Health England (PHE), recommends a series of steps to be taken throughout the year by the National Health Service (NHS), local authorities, social care, voluntary organisations and local communities, working with people at risk. It is underpinned by a system of cold weather alerts, developed with the Met Office and accompanied by 'action cards', outlining the actions to be taken at each alert level by the relevant bodies. The system operates in England from 1 November to 31 March.

This study sought to elicit the views of local decision makers involved in the implementation of the CWP in the winter of 2012/13 to establish the effects of the CWP on local planning. It was part of a multi-component evaluation which looked at the extent to which the CWP was implemented at local level, its potential cost-effectiveness, how it might be improved, and the relationship between cold weather and health (morbidity and mortality).^{2 3 4 5}

Methods

Semi-structured qualitative interviews were undertaken with representatives from Primary Care Trusts (PCTs)/Shadow Clinical Commissioning Groups (CCGs) and local authorities who were involved in local CWP planning across England (Table 1). A purposive sample of ten local authority/council areas was drawn, ensuring a mix of rural and urban locations, and covering a range of different winter weather patterns with at least one local authority area from each Government Office Region and from each quintile of the English Index of Multiple Deprivation (2010)⁶.

The Chief Executives of the local authorities (LAs) and PCTs in the ten areas were approached by letter and asked to identify appropriate interviewees involved in local CWP

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3 planning and implementation. Potential participants were invited to interview by email and
4 followed up by a telephone call if there was no response.
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8 Interviews were conducted by four members of the research team by telephone and audio-
9 recorded with participants' consent. The topic guide for interviews covered seven main
10 areas: (i) brief background of participants; (ii) current activities relating to cold weather
11 planning; (iii) local cold weather plans; (iv) important issues, facilitating factors and
12 challenges for cold weather planning and response; (v) procedures for responding to and
13 views on the cold weather alerts; (vi) partnership working; and (vii) costs of implementation.
14 The topic guide was used flexibly so that issues of importance could be discussed in detail.
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22 All interviews were transcribed verbatim by an external service and the transcripts were
23 divided into localities. Wherever possible, the findings from the interviews within a
24 particular locality were triangulated with examinations of the local cold weather and winter
25 plans that participants within that locality had sent to the team. Transcripts were coded
26 using Nvivo 10 software. The codes were examined and linked to form major themes in an
27 iterative fashion, whereby emerging themes informed further coding, which led to the
28 refinement of themes. Three researchers independently analysed the data. Discrepancies in
29 interpretation were resolved through re-examination of data and group discussions.
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37 Ethical approval was obtained in November 2012 from the Observational Research Ethics
38 Committee of the London School of Hygiene & Tropical Medicine. Local NHS R&D
39 governance approvals were obtained between January and February 2013 from NHS R&D
40 offices in the 10 localities.
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47 **Results**

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51 Fifty-two interviews were held in the ten LA areas in England between November 2012 and
52 May 2013 (See Table I). All interviewees were supportive of the CWP. Five themes
53 emerged: (1) CWP as a framework to formalise working arrangements; (2) variation in local
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leadership; (3) difficulties engaging general practitioners; (4) differences defining vulnerable individuals; and (5) lack of performance monitoring mechanisms.

Table I. Organisational background of interviewees by region (n=52)

Locality ID	Broad Location in England	IMD Quintile	Rural or urban	Local authority Managers	PCT/CCG Managers	NHS Trust	NHS Ambulance trust	Care home	Voluntary sector	General practice
M1	Midlands	1	Urban		2			3		1
M2	Midlands	1	Urban	7	1					
N1	North	3	Rural	1	1	2	1			
N2	North	3	Urban	3		2				
N3	North	2	Rural	2	1			3		
N4	North	5	Rural	3	2				1	
S1	South	4	Rural	4	1		1			
S2	South	2	Urban	2	2					
S3	South	3	Rural	2	2					
S4	South	2	Urban	1	1					
Total				25	13	4	2	6	1	1

North = GOR of North East, North West, Yorkshire & The Humber

South = GOR of South East, South West, London and East of England

IMD quintile 1=most deprived; 5=least deprived

Framework to formalise working arrangements

All interviewees felt that the CWP had helped formalise processes for planning and responding to periods of cold weather, alerting “*senior management to the need to have this more systematic approach to things*” (LA manager, North). Interviewees reported that they were better prepared than before the CWP, and that the CWP had led to more collaboration between agencies with increased joint planning and improved communications. Typical networks consist of NHS organisations, the LA, police and fire authorities, housing providers, and voluntary and community organisations. As a result managers felt that their organisations had become more proactive, rather than reactive, in their response to cold weather.

The CWP was also viewed as a compilation of good practice that could be used as a reference locally. Examples given were improvements to home heating, maximising benefits receipt for vulnerable people and implementing a good neighbour scheme for improving community resilience. The CWP suggests actions at five levels that range from year-round planning to emergency response. This comprehensiveness was commended:

I think it gave us a focus on what the outcomes were that we were trying to get from it and I think it made people realise it wasn't just about the hospital setting and sort of NHS side of it and social care side of it, it's far wider than that. (PCT manager, South)

Variation in Local Leadership

Participants reported variation in local leadership of CWP implementation. In most cases, implementation fell to emergency planning or resilience staff. One interviewee described it as being “*handed round like a hot potato*”. Interviewees reported that, given the emphasis in the CWP on preventing cold-related morbidity and mortality, overall leadership of the plan in future should be the responsibility of the Director of Public Health, when this post transferred from the NHS to the LA in 2013.

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3 Leadership from the LA public health department was seen as necessary to facilitate the
4 coordination of initiatives aimed at preventing mortality and morbidity that were being
5 implemented by different departments (housing, adult social care, communities and
6 neighbourhoods, etc). It was maintained that the public health department would be
7 better placed to address the wider determinants of cold-related health and well-being:
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11 *“this is really about public health and education and ensuring that, not just educating the*
12 *people that might be vulnerable, but the people around the people who might be*
13 *vulnerable.”* (PCT Emergency Planner, South)
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18 ***Difficulty engaging general practice***

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22 General practices have a pivotal role in helping potentially vulnerable people prepare for
23 winter and in monitoring their health. However, interviewees frequently expressed
24 difficulty engaging GPs. There were examples of GPs referring patients to interventions
25 aimed at reducing cold-related mortality and morbidity, such as household warmth
26 initiatives but most managers reported very few referrals despite efforts to engage GPs. This
27 was linked to GPs not seeing it *“as part of their job”* (LA manager, North) and that GPs had
28 many competing priorities. One area utilised a ‘GP Champion’ which had helped to raise
29 awareness amongst GPs but most managers acknowledged that more work was needed to
30 involve GPs, particularly as CCGs were to take over the former PCTs’ roles in cold weather
31 planning from April 2013. Interviewees suggested that the CWP be published earlier in the
32 year, thus giving the ‘lead time’ necessary to engage GPs in the provision of cold weather
33 advice and referrals. Difficulties engaging GPs have been cited elsewhere⁷ and this study
34 only managed to recruit one GP for interview.
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47 ***Identifying vulnerable people***

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51 Whilst health and social care managers reported using the voluntary sector to help engage
52 their target audience, different organisations used different definitions of ‘vulnerable
53 people’. In many cases only people who were in receipt of services from the LA were
54 considered, rather than the broader population of local residents who might be vulnerable
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3 during periods of cold weather. Local managers also tended to think of vulnerability in terms
4 of socio-economic deprivation. Typical definitions of vulnerability included “*in receipt of*
5 *statutory services*” or “*eligible for services*”.
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10 Localities employed different strategies for identifying people who might be vulnerable to
11 cold weather. Mostly organisations used opportunistic strategies that relied on staff who
12 came into contact with members of the public as part of their duties “*to keep their eyes open*
13 *when they visit*” for people who might be vulnerable and refer them to relevant services (LA
14 emergency planner, South). Some managers acknowledged that this method resulted in the
15 exclusion of other potentially vulnerable people who were not in contact with services. They
16 also reported that they were not always confident that they knew “*who the risk groups are*
17 *and whether the interventions that are advocated are the correct interventions*” (PCT
18 emergency planner, Midlands).
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27 The task of identifying potentially vulnerable people was complicated by the many different
28 organisations that hold lists of such people and difficulties with sharing data without the
29 consent of the individual. A compromise was to compile a ‘list of lists’ that could be shared
30 during an emergency, when data protection laws allow data to be shared between
31 organisations. However, these individual lists were used for different types of emergencies
32 (for example, flooding) with specific definitions of vulnerability that did not necessarily
33 include all people who might be vulnerable during cold weather.
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41 Some localities had tried to identify people who might be vulnerable during cold weather. In
42 one locality, research had revealed that excess winter mortality was higher in the least
43 deprived areas as there were a large number of privately owned, large, old and cold houses.
44 In another locality, the LA had identified a particular problem amongst residents on low
45 incomes who were renting privately. For some residents, the issues went beyond
46 household warmth to include difficulties in getting access to food and medication during
47 periods of snow and ice. Interviews also reported reluctance to accept help:
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54 *We had people turning round and saying, “No we don't need these, we don't want*
55 *them”. And yet, according to the information that we had those were people that could*
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3 *do with that support. The people actually distributing them in some cases were able to*
4 *persuade them you know 'Just take it, it's here if you use it great, if you don't need it at*
5 *least you've got it', but you know sometimes people can be a bit dogmatic and say 'No'*
6 *and you don't want to go in too heavily and cause distress.*
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10 (LA resilience forum manager, Midlands)
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12 ***Lack of performance monitoring***

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16 The NHS and LA commission a range of providers to deliver care to people in their homes. In
17 this context, local health and social care commissioning managers found that the CWP, and
18 the cold weather alerts, served as a useful way of engaging with providers on the subject of
19 cold weather planning and encouraging them to ensure that the CWP actions were being
20 carried out by front line staff (e.g. checking the temperature in a client's home or
21 undertaking home insulation assessments). However, many interviewees reported that they
22 had no evidence if the contractors were conducting all the relevant actions. They were
23 neither included in contracts nor were they part of contract monitoring procedures and
24 there was an assumption that the providers would just do them as part of their duty of care:
25 *"These are professional people who know the risks. They know vulnerable people. You don't*
26 *want to teach them to suck eggs."*
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35 (PCT emergency planner, South)
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39 **Discussion**

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42 ***Main findings***

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46 Overall, the national CWP was viewed as providing a comprehensive range of activities
47 related to winter and increasing the extent to which localities had a planned, co-ordinated
48 response to cold weather. Localities felt they were more prepared for the arrival of cold
49 weather than they had been previously. The CWP reinforced existing practice, provided
50 guidance for best practice and increased partnership working between local health and
51 social care services.
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3 There were concerns about identifying comprehensively who was vulnerable, with related
4 implications for the effectiveness of interventions. The CWP lists different categories of
5 'vulnerable people' (e.g. people with pre-existing chronic medical conditions) but such
6 individuals may not be especially vulnerable during cold weather in the absence of other risk
7 factors such as social isolation or poor housing. Other people may not become vulnerable
8 until cold weather hits. For example, they may be at increased risk of falls, respiratory
9 diseases, hypothermia and social isolation. Socio-economic deprivation cannot be used
10 straightforwardly as an indicator of risk in this context. There is little sign of a socio-
11 economic gradient in the pattern of excess winter deaths.^{8 9} For example, private renters
12 and home owners are at significantly increased risk of excess winter mortality compared to
13 social housing tenants. Older people who live in larger and harder to heat homes may be
14 overlooked if socio-economic deprivation is used exclusively as an indicator of
15 vulnerability.^{10 11 12} This affects the targeting of interventions. Distribution of 'warm packs'
16 will have little effect if they go to people in well insulated social housing or people whose
17 critical needs are lack of access to food and medicine.
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What is already known on this topic

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35 Very little has been published on the effectiveness of cold weather planning. The only other
36 evaluation of the CWP in England was by the Health Protection Agency in 2012.^{13 14} It
37 recommended that CWP actions be embedded in local Joint Strategic Needs Assessments,
38 which the current study found to be in place. Other studies have focussed on local
39 initiatives aimed at reducing excess winter mortality. Many of these did not achieve their
40 intended benefits, partially due to the interventions not being appropriate for people's
41 needs.^{15 16} Recipients of these local initiatives were also said to be sensitive about any
42 implication that they could not afford to 'keep well' during winter, finding questions about
43 their situation embarrassing and intrusive and therefore less likely to engage.^{13 14 17 18 19}
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What this study adds

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3 This study is the first independent evaluation of the CWP for England. It confirms previous
4 findings including the continuing difficulties in defining vulnerability and the lack of evidence
5 to identify the most effective measures to target 'at risk' groups in community settings
6 appropriately. These issues have also been found in evaluations of heatwave plans²⁰,
7 including the UK Health Heatwave Plan.³
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13 The CWP action cards and cold weather alerts were found to be a useful way to engage
14 health and social care providers, particularly where the care of people in their own homes
15 was contracted to private organisations. However, as supported by the findings from the
16 national survey of district nurses carried out as part of this evaluation², the specified CWP
17 actions were not always undertaken and the CWP was not always reflected in local service
18 contracts. This could have future implications for the delivery of the CWP by front line staff
19 if it is not included in the commissioning of health and social services.
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29 ***Limitations of this study***

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32 This study took place while planning was progressing for the April 2013 start of the new
33 organisation of the NHS following the Health and Social Care Act 2012 and so reflects local
34 partnerships that may no longer exist. Since then, the CWP has been annually refreshed
35 three times, with the 2015/16 version including National Institute for Health and Care
36 Excellence (NICE) guidelines on the health risks associated with cold homes.²¹ This provides
37 definitions for vulnerability to cold homes – such as people with cardiovascular diseases or
38 pregnant women²² - which resolves some of the issues raised by interviewees. Although the
39 CWP is evaluated locally and annually by the agencies involved, it is not known if the lack of
40 engagement of GPs has been addressed or if local public health teams have assumed the
41 leadership role.
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51 Whilst this study sampled ten LA areas purposively to obtain a mix of rural and urban
52 locations, a range of different winter weather patterns by region and areas with different
53 levels of socio-economic deprivation, it is possible that some differences in responses to the
54 CWP – e.g. variation in local leadership or in GP engagement - were not captured.
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Finally, this part of the wider evaluation of the CWP² relies heavily on interviews with staff in local agencies responsible for the delivery of the CWP. Although a great deal of research on policy implementation inevitably relies extensively on interviews with participants, it is important to recognise that what people say in response to interview questions cannot be taken as a direct indication of what they do in practice. It is possible that the CWP has less influence on local cold weather planning and response than indicated in the data reported here. The suggestion is that the accounts given by participants are likely to represent the most favourable indication of the extent to which the CWP motivates appropriate action locally.

Conclusions

The 2012/1013CWP was reported to be welcomed by local health and social care managers involved in its implementation. They found it helped to make their organisations more proactive than reactive to cold weather. Nonetheless, there were areas where the Plan and/or its local implementation could be improved, such as finding better ways to involve general practice much more fully in the response and targeting resources particularly at socially isolated individuals in cold homes with specific interventions aimed at reducing their social isolation by building community resilience as well as helping them heat their homes better.

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¹ NHS. Cold Weather Plan for England. *Protecting health and reducing harm from cold*. NHS, 2012.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216937/9211-TSO-NHS-Cold-Weather-Plan_Accessible-main-doc.pdf (7 October 2015, date accessed)

² Chalabi Z, Erens B, Hajat S, Heffernan C, Jones S, Mays N, Ritchie B, Wilkinson P. *Evaluation of the Implementation and health related impacts of the Cold Weather Plan for England 2012*. <http://www.piru.ac.uk/projects/current-projects/cold-weather-plan-evaluation.html>, (10 February 2016 date accessed).

³ Chalabi Z, Hajat S, Wilkinson P, Erens B, Jones L, Mays N. Evaluation of the cold weather plan for England: modelling of cost-effectiveness. *Public Health*, 2016, **137**:13-9. doi: 10.1016/j.puhe.2015.11.001. Epub 2015 Dec 21.

⁴ Hajat S, Chalabi Z, Wilkinson P, Erens B, Jones L, Mays N. Public health vulnerability to wintertime weather: time-series regression and episode analyses of national mortality and morbidity databases to inform the Cold Weather Plan for England. *Public Health*, 2016,**137**:26-34. doi: 10.1016/j.puhe.2015.12.015. Epub 2016 Feb 9.

⁵ Jones L, Mays N. The experience of potentially vulnerable people during cold weather: implications for policy and practice. *Public Health*, 2016,**137**:20-5. doi: 10.1016/j.puhe.2015.12.008. Epub 2016 Jan 23

⁶ Communities and Local Government. The English Indices of Deprivation. www.gov.uk/government/publications/english-indices-of-deprivation-2010 (5 January 2016, date accessed)

⁷ Abrahamson V, Raine R. Health and social care responses to the Department of Health Heatwave Plan. *Journal of Public Health* 2009,**31(4)**:478-489.

- 1
2
3
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- 4 ⁸ Maheswaran R, Chan D, Fryers PT, McManus C, McCabe H. Socio-economic deprivation
5 and excess winter mortality and emergency hospital admissions in the South Yorkshire
6 Coalfields Health Action Zone, UK. *Public Health*, 2005, **118(3)**:167-76.
- 7
8 ⁹ Barnard L, Baker M, Hales, S Howden-Chapman P. Excess winter morbidity and mortality:
9 do house and socio-economic status have an effect? *Rev Environ Health* 2008, **23(3)**:203-21.
- 10
11 ¹⁰ Department of Communities and Local Government. *English Household Survey 2010/11*.
12 [www.gov.uk/government/publications/english-housing-survey-household-report-2010-to-](http://www.gov.uk/government/publications/english-housing-survey-household-report-2010-to-2011)
13 [2011](http://www.gov.uk/government/publications/english-housing-survey-household-report-2010-to-2011). (7 October 2015, date accessed).
- 14
15
16 ¹¹ Wilkinson P, Pattenden S, Armstrong B. *Cold comfort: the social and environmental*
17 *determinants of excess winter deaths in England 1986-1996*. Joseph Rowntree Foundation,
18 2001.
- 19
20 ¹² Watkins S, Byrne D, McDevitt M. Winter excess morbidity: is it a summer phenomenon?
21 *Journal of Public Health Medicine* 2001, **23**: 237-241.
- 22
23 ¹³ Ghosh A, Carmichael C, Elliot A, Green H, Murray V, Petrokosfy, C. The Cold Weather Plan
24 Evaluation: an example of pragmatic evidence –based policy making? *Public Health* 2014,
25 **128**: 619-627.
- 26
27
28 ¹⁴ Health Protection Agency. *Evaluation Report – Cold Weather Plan for England 2011-12*.
29 Health Protection Agency: 2012.
- 30
31
32 ¹⁵ Wright, F. Old and cold: older people and policies failing to address fuel poverty. *Social*
33 *Policy and Administration* 2006, **38(5)**:488-503.
- 34
35
36 ¹⁶ National Audit Office. *Warm Front: helping to combat fuel poverty*.
37 www.nao.org.uk/report/warm-front-helping-to-combat-fuel-poverty (7 October 2015, date
38 accessed)
- 39
40
41 ¹⁷ Day R, Hitchings R. *Older people and their winter warmth behaviours: understanding the*
42 *contextual dynamics*. University of Birmingham, 2009.
- 43
44 ¹⁸ Todd AM, Lusambili A, Homer C, et al. Understanding factors influencing vulnerable older
45 people keeping warm and well in winter: a qualitative study using social marketing
46 techniques. *BMJ* 2012, **Open2**:3000922.
- 47
48
49 ¹⁹ Day R, Hitchings R. ‘Only old ladies would do that’: age stigma and older people’s
50 strategies for dealing with winter cold. *Health and Place* 2011, **17**:885-94.
- 51
52
53 ²⁰ Kovats RS, Hajat S. Heat stress and public health: a critical review. *Annu Rev Public Health*
54 2008;**29**:41-55.
- 55
56
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3
4 ²¹ NICE. Excess Winter Deaths & Morbidity and the Health Risks Associated with Cold
5 Homes. NICE Guidance, 2015, www.nice.org.uk/guidance/ng6. (7 October 2015, accessed)
6

7 ²² NICE. Preventing excess winter deaths and illness associated with cold homes. Quality
8 Standard, March 2016. (11 April 2017, accessed)
9
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For Peer Review

Local Health and Social Care Responses to Implementing the National Cold Weather Plan

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Abstract

Background

The Cold Weather Plan (CWP) for England was launched by the Department of Health (DH) in 2011 to prevent avoidable harm to health by cold weather by enabling individuals to prepare and respond appropriately. This study sought ~~to elicit~~ the views of local decision makers involved in the implementation of the CWP in the winter of 2012/13 to establish the effects of the CWP on local planning. It was part of a multi-component independent evaluation of the CWP.

Methods

~~Between November 2012 and May 2013, 52 semi-structured qualitative interviews were undertaken by telephone with representatives from Primary Care Trusts (PCTs)/Shadow Clinical Commissioning Groups (CCGs) and local authorities who were involved in local CWP planning across England.~~

~~Ten local authority areas were purposively sampled which varied in level of deprivation and urbanism. Fifty-two semi-structured interviews were held with health and social care managers involved in local planning between November 2012 and May 2013.~~

Results

~~Thematic analysis revealed 5 themes: (1) CWP as a framework to formalise working arrangements; (2) local leadership of CWP implementation; (3) difficulties engaging general practitioners; (4) differences defining vulnerable individuals; and (5) lack of performance monitoring.~~

~~Thematic analysis revealed that the CWP was considered useful framework to formalise working arrangements between agencies though local leadership varied across localities. There were difficulties in engaging general practitioners, differences in defining vulnerable individuals and a lack of performance monitoring mechanisms.~~

Conclusions

The CWP was welcomed by local health and social care managers and improved preparedness for winter. Areas for improvement include better integration with general

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6 practice and targeting resources at socially isolated individuals in cold homes with specific
7 interventions aimed at reducing social isolation and building community resilience.
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For Peer Review

Introduction

~~The Cold Weather Plan (CWP) for England was first launched by the Department of Health (DH). The Department of Health launched the Cold Weather Plan (CWP) in 2011 with the aim to prevent of preventing avoidable harm to health by alerting people to the negative health effects of cold weather, and enabling them and local public agencies to prepare and respond appropriately.¹ This annual plan, now the responsibility of Public Health England (PHE), recommends a series of steps to be taken throughout the year by the National Health Service (NHS), local authorities, social care, voluntary organisations and local communities working with people at risk. It is underpinned by a system of cold weather alerts, developed with the Met Office and accompanied by 'action cards', outlining the actions to be taken at each alert level by the relevant bodies. The system operates in England from 1 November to 31 March.~~

This study sought to elicit the views of local decision makers involved in the implementation of the CWP in the winter of 2012/13 to establish the effects of the CWP on local planning. It was part of a multi-component evaluation which looked at the extent to which the CWP was implemented at a local level, its potential cost-effectiveness, how it may be improved and the relationship between cold weather and health (morbidity and mortality).^{2 3 4 5}

Methods

Semi structured qualitative interviews were undertaken with representatives from Primary Care Trusts (PCTs)/Shadow Clinical Commissioning Groups (CCGs) and local authorities who were involved in local CWP planning across England (Table 1). ~~The sampling frame was a purposive sample of ten upper tier level LA areas ensuring a mix of rural and urban locations covering a range of different winter weather patterns with at least one locality from each Government Office Region and from each quintile of the English Indices of Deprivation. A purposive sample of ten local authority/council areas was drawn, ensuring a mix of rural and urban locations, and covering a range of different winter weather patterns with at least one~~

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7 local authority area from each Government Office Region and from each quintile fo the
8 English Index of Multiple Deprivation(2010).⁶ -
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11 The Chief Executives of the local authorities (LAs) and PCTs in the ten localities-areas
12 were approached by letter and asked to generate appropriate contacts for local CWP
13 planning and implementation. Potential participants were invited to interview by email and
14 followed up by a telephone call if there was a non-response.
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18 Interviews were conducted by four members of the research team by telephone and audio-
19 recorded with participants' consent. The topic guide for interviews contained seven main
20 areas: (i) brief background of participants; (ii) current activities relating to cold weather
21 planning; (iii) local cold weather plans; (iv) important issues, facilitating factors and
22 challenges for cold weather planning and response; (v) procedures for responding to and
23 views on the cold weather alerts; (vi) partnership working; and (vii) costs of implementation.
24 The topic guide was used flexibly so that issues of importance could be discussed in detail.
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30 All interviews were transcribed verbatim by an external service and the transcripts were
31 divided into localities. Wherever possible, the findings from the interviews within a
32 particular locality were triangulated with examinations of the local cold weather and winter
33 plans that participants within that locality had sent to the team. Transcripts were coded
34 using Nvivo 10 software. The codes were examined and linked together into major themes
35 in an iterative fashion, whereby emerging themes informed further coding, which led to the
36 refinement of themes. Three researchers independently analysed the data. Discrepancies in
37 interpretation were resolved through re-examination of data and group discussions.
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44 Ethical approval was obtained in November 2012 from the Observational Research Ethics
45 Committee of the London School of Hygiene & Tropical Medicine. Local NHS R&D
46 governance approvals were obtained between January and February 2013 from NHS R&D
47 offices in the 10 localities.
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51 52 53 **Results** 54 55 56 57 58 59 60

Fifty-two interviews were held in the ten LA areas in England between November 2012 and May 2013 (See Table I). All interviewees were supportive of the CWP. Five themes emerged: (1) CWP as a framework to formalise working arrangements; (2) variation in local leadership-of CWP implementation; (3) difficulties engaging general practitioners; (4) differences defining vulnerable individuals; and (5) lack of performance monitoring mechanisms.

Table I. Organisational background of interviewees by region (n=52)

Locality ID	Broad Location in England	IMD Quintile	Rural or urban	Local authority Managers	PCT/CCG Managers	NHS Trust	NHS Ambulance trust	Care home	Voluntary sector	General practice
M1	Midlands	1	Urban		2			3		1
M2	Midlands	1	Urban	7	1					
N1	North	3	Rural	1	1	2	1			
N2	North	3	Urban	3		2				
N3	North	2	Rural	2	1			3		
N4	North	5	Rural	3	2				1	
S1	South	4	Rural	4	1		1			
S2	South	2	Urban	2	2					
S3	South	3	Rural	2	2					
S4	South	2	Urban	1	1					
Total				25	13	4	2	6	1	1

North = GOR of North East, North West, Yorkshire & The Humber

South = GOR of South East, South West, London and East of England

IMD quintile 1=most deprived; 5=least deprived

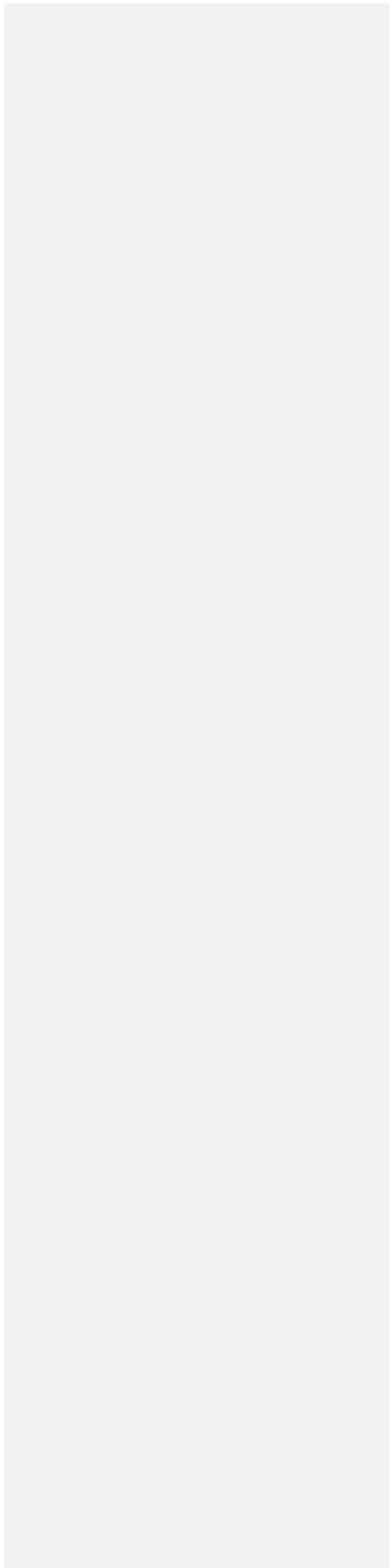
Table I. Organisational background of Interviewees by region (n=52)

	Local authority	PCT/CCG	NHS Trust	NHS Ambulance trust	Care home	Voluntary sector	General practice
Midlands-1		2			3		1
Midlands-2	7	1					
North-1	1	1	2	1			

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North-2	3		2				
North-3	2	1			3		
North-4	3	2				1	
South-1	4	1		1			
South-2	2	2					
South-3	2	2					
South-4	1	1					
	25	13	4	2	6	1	1

For Peer Review



Framework to formalise working arrangements

All interviewees felt the CWP had helped formalise processes for planning and responding to periods of cold weather, alerting “*senior management to the need to have this more systematic approach to things*” (LA manager, North). Interviewees reported that they were better prepared than before the CWP and that the CWP had led to more collaboration between agencies with increased joint planning and improved communications. Typical networks consist of NHS organisations, the LA, police and fire authorities, housing providers, and voluntary and community organisations. As a result managers felt that their organisations had become more proactive, rather than reactive, in their response to cold weather.

The CWP was also viewed as a compilation of good practice that could be used as a reference locally. Examples given were improvements to home heating, maximising benefits receipts for vulnerable people and implementing a good neighbour scheme for improving community resilience. The CWP suggests actions at five levels that range from year-round planning to emergency response. This comprehensiveness was commended:

I think it gave us a focus on what the outcomes were that we were trying to get from it and I think it made people realise it wasn't just about the hospital setting and sort of NHS side of it and social care side of it, it's far wider than that. (PCT manager, South)

Local Leadership of CWP Implementation Variation in Local Leadership

Leadership of CWP implementation varied across the localities Participants reported **variation in local leadership of CWP implemetnation**. In most cases, implementation fell to emergency planning or resilience staff. One interviewee described it as being “*handed round like a hot potato*”. Interviewees reported that, given the emphasis in the CWP on preventing cold-related morbidity and mortality, overall leadership of the plan should be the future responsibility of the Director of Public Health, when transferred from the NHS to the LA in 2013.

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8 Leadership from the LA public health department was seen as necessary for facilitating
9 the coordination of initiatives aimed at preventing mortality and morbidity that were
10 being implemented by different departments (housing, adult social care, communities
11 and neighbourhoods, etc). It was maintained that the public health department would be
12 better placed to address the wider determinants of cold related health and well-being:
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14 *“this is really about public health and education and ensuring that, not just educating the
15 people that might be vulnerable, but the people around the people who might be
16 vulnerable.”* (PCT Emergency Planner, South)
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20 21 ***Difficulty engaging General Practice*** 22

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24 General practices have a pivotal role in helping potentially vulnerable people prepare for
25 winter and in monitoring their health. However, interviewees frequently expressed
26 difficulty engaging GPs. There were examples of GPs referring patients to interventions
27 aimed at reducing cold-related mortality and morbidity, such as household warmth
28 initiatives but most managers reported very few referrals despite efforts to engage GPs. This
29 was linked to GPs not seeing it *“as part of their job”* (LA manager, North) and that GPs had
30 many competing priorities. One area utilised a ‘GP Champion’ which helped to raise
31 awareness amongst GPs but most managers acknowledged that more work was needed to
32 involve GPs, particularly as CCGs were to take over the former PCTs’ roles in cold weather
33 planning from April 2013. Interviewees suggested that the CWP be published earlier in the
34 year, thus giving the ‘lead time’ necessary to engage GPs in the provision of cold weather
35 advice and referrals. Difficulties engaging GPs have been cited elsewhere⁷ and this study
36 only managed to recruit one GP for interview.
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46 47 ***Identifying vulnerable people*** 48

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50 Whilst health and social care managers reported using the voluntary sector to help engage
51 their target audience, different organisations used different definitions of ‘vulnerable
52 people’. In many cases only people who were in receipt of services from the LA were
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6 considered, rather than the broader population of local residents who might be vulnerable
7 during periods of cold weather. Local managers also tended to think of vulnerability in terms
8 of socio-economic deprivation. Typical definitions of vulnerability included *“in receipt of*
9 *statutory services”* or *“eligible for services”*.
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14 Localities employed different strategies for identifying people who might be vulnerable to
15 cold weather. Mostly organisations used opportunistic strategies that relied on staff to
16 typically come into contact with members of the public as part of their duties *“to keep their*
17 *eyes open when they visit”* for people who are potentially vulnerable and referring them to
18 relevant services (LA emergency planner, South). Some managers acknowledged that this
19 method resulted in the exclusion of other ‘vulnerable people’ who were not in contact with
20 services. They also reported that they were not always confident that they knew *“who the*
21 *risk groups are and whether the interventions that are advocated are the correct*
22 *interventions”* (PCT emergency planner, Midlands).
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29 The task of identifying potentially vulnerable people was complicated by the many different
30 organisations that hold lists of such people and difficulties with sharing data without the
31 consent of the individual. A compromise was to compile a ‘list of lists’ that could be shared
32 during an emergency, when data protection laws allow data to be shared between
33 organisations. However these individual lists were used for different types of emergencies
34 (for example flooding) with specific definitions of vulnerability that did not necessarily
35 include all people who might be vulnerable during cold weather.
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41 Some localities had tried to identify people who might be vulnerable during cold weather. In
42 one locality research had revealed that excess winter mortality was higher in the least
43 deprived areas as there were a large number of privately owned large, old and cold houses.
44 In another locality the LA had identified a particular problem amongst residents on low
45 incomes who were renting privately. For some residents the issues went beyond household
46 warmth to include difficulties in getting access to food and medications during periods of
47 snow and ice. Interviews also reported reluctance to accept help:
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7 | We had people turning round and saying, “‘No we don't need these, we don't want
8 them’. And yet, according to the information that we had those were people that could
9 do with that support. The people actually distributing them in some cases were able to
10 persuade them you know ‘Just take it, it's here if you use it great, if you don't need it at
11 least you've got it’, but you know sometimes people can be a bit dogmatic and say ‘No’
12 and you don't want to go in too heavily and cause distress.
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15 (LA resilience forum manager, Midlands)
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17 **Lack of performance monitoring**

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21 The NHS and LA commission a range of providers to deliver care to people in their homes. In
22 this context, local health and social care commissioning managers found that the CWP, and
23 the cold weather alerts, served as a useful way of engaging with providers on the subject of
24 cold weather planning and encouraging them to ensure that the CWP actions were being
25 carried out by front line staff (e.g. checking the temperature in a client's home or
26 undertaking home insulation assessments). However, many interviewees reported that they
27 had no evidence if the contractors were conducting all the relevant actions. ~~It wasn't
28 included in contracts nor was it part of contract monitoring procedures and there was an
29 assumption that the providers would just do it as duty of care:~~
30 They were neither included in contracts nor were they part of contract monitoring
31 procedures and there was an assumption that the providers would just do them as part of
32 their duty of care:
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39 -“These are professional people who know the risks. They know vulnerable people. You don't
40 want to teach them to suck eggs.”
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42 (PCT emergency planner, South)
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45 **Discussion**

46 47 48 **Main findings**

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51 Overall the national CWP was viewed as providing a comprehensive range of activities
52 related to winter and increasing the extent to which localities had a planned co-ordinated
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6 response to cold weather. Localities felt they were more prepared for the arrival of cold
7 weather than they had been previously. The CWP reinforced existing practice, provided
8 guidance for best practice and increased partnership working between local health and
9 social care services.
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14 There were concerns about identifying comprehensively who's vulnerable with related
15 implications for the effectiveness of interventions. The CWP lists different categories of
16 'vulnerable people' (e.g. people with pre-existing chronic medical conditions) but such
17 individuals may not be vulnerable during cold weather in the absence of other risk factors
18 such as social isolation or poor housing. Other people may not become vulnerable until cold
19 weather hits. For example, they may be at increased risk of falls, respiratory diseases,
20 hypothermia and social isolation. Socio-economic deprivation cannot be used
21 straightforwardly as an indicator of risk in this context. There is ~~no~~ little sign of socio-
22 economic gradient in the pattern of excess winter deaths.^{8 9} For example, Private renters
23 and home owners are at significantly increased risk of excess winter mortality compared to
24 social housing tenants. Older people who live in larger and harder to heat homes may be
25 overlooked if ~~not taken into account~~ socio-economic deprivation is used exclusively as an
26 indicator of vulnerability.^{10 11 12} This affects the use of interventions. Distribution of 'warm
27 packs' will have little effect if they go to people in well insulated social housing or people
28 whose ~~the~~ critical needs are lack of access to food and medicine.
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39 ***What is already known on this topic***

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42 Very little has been published on the effectiveness of cold weather planning. The only other
43 evaluation of the CWP in England was by the Health Protection Agency in 2012.^{13 14} It
44 recommended that CWP actions be embedded in local Joint Strategic Needs Assessments,
45 which ~~this the current~~ study found to be in place. Other studies have focussed on local
46 initiatives aimed at reducing excess winter mortality. Many of these did not achieve their
47 intended benefits, partially due to the interventions not being appropriate for people's
48 needs.^{15 16} Recipients of these local initiatives were also said to be sensitive about any
49 implication that they could not ~~being able to~~ afford to 'keep well' during winter, finding
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6 questions about their situation embarrassing and intrusive and therefore less likely to
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For Peer Review

What this study adds

This study is the first independent evaluation of the CWP for England. It confirms previous findings including the continuing difficulties in defining vulnerability and the lack of evidence to identify the most effective measures to target 'at risk' groups in community settings appropriately. These issues have also been found in evaluations of heatwave plans²⁰, including the UK Health Heatwave Plan.³

The CWP action cards and cold weather alerts were found to be a useful way to engage with health and social care providers, particularly ~~as the care of people in their own homes is largely contracted to external organisations~~ where the care of people in their own homes was contracted to private organisations. However, aAs supported by the findings from the national survey of district nurses carried out as part of this evaluation², the specified CWP actions were not always undertaken and the CWP was not always reflected in local service contracts. This could have future implications for the delivery of CWP by front line staff if it is not included in the commissioning of health and social services.

Limitations of this study

This study took place ~~while planning was progressing for the April 2013 start of the new organisation of the NHS following the Health and Social Care Act 2012 and so during the planning for the April 2013 start of the new reorganisation of the NHS and so~~ reflects local partnerships that may no longer exist. Since then, the CWP has been annually refreshed three times, with the 2015/16 version including National Institute for Clinical Guidance (NICE) guidelines on health risks associated with cold homes.²¹ This provides new definitions for vulnerability to cold homes – such as people with cardiovascular diseases or pregnant women²² ~~to cold which resolves - which resolves~~ some of the issues raised by interviewees. Although the CWP is evaluated locally and annually by the agencies involved, it is not known if the lack of engagement with GPs has been addressed or if local public health teams have assumed the leadership role.

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7 Whilst this study sampled ten LA areas purposively to obtain a mix of rural and urban
8 locations, a range of different winter weather patterns by region and areas with different
9 levels of socio-economic deprivation, it is possible that some differences in responses to the
10 CWP – e.g. variation in local leadership or in GP engagement – were not captured.

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14 Finally, this part of the wider evaluation of the CWP² relies heavily on interviews with staff in
15 local agencies responsible for the delivery of the CWP. Although a great deal of research on
16 policy implementation inevitably relies extensively on interviews with participants, it is
17 important to recognise that what people say in response to interview questions cannot be
18 taken as a direct indication of what they do in practice. It is possible that the CWP has less
19 influence on local cold weather planning and response than indicated in the data reported
20 here. The suggestion is that the accounts are likely to represent the most favourable
21 indication of the extent to which the CWP motivates appropriate action locally.
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26 27 28 29 **Conclusions**

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32 The 2012/1013 ~~Cold Weather Plan CWP~~ was reported to be welcomed by local health and
33 social care managers involved in its implementation. They found it helped to make their
34 organisations better prepared for winter more proactive than reactive to cold weather.
35 Nonetheless there were areas where the ~~plan-Plan~~ could be improved, such as finding
36 better ways to involve integration with general practice much more fully in the response
37 and targeting resources at social isolated individuals in cold homes with specific
38 interventions aimed at reducing their social isolation by and building community resilience
39 as well as helping them heat their homes better. ~~Many of these issues remain and local~~
40 ~~implementation, while being refined, could be further sharpened.~~
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46 47 **Acknowledgements**

48
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29 ¹ NHS. Cold Weather Plan for England. *Protecting health and reducing harm from cold*. NHS,
30 2012.
31 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216937/9_211-TSO-NHS-Cold-Weather-Plan_Accessible-main-doc.pdf (7 October 2015, date accessed)
32
33

34 ² Chalabi Z, Erens B, Hajat S, Heffernan C, Jones S, Mays N, Ritchie B, Wilkinson P.
35 *Evaluation of the Implementation and health related impacts of the Cold Weather Plan for*
36 *England 2012*. <http://www.piru.ac.uk/projects/current-projects/cold-weather-plan-evaluation.html>, (10 February 2016 date accessed).
37
38

39 ³ Chalabi Z, Hajat S, Wilkinson P, Erens B, Jones L, Mays N. Evaluation of the cold weather
40 plan for England: modelling of cost-effectiveness. *Public Health*, 2016 (in press, available
41 online from 26/1/16)
42

43 ⁴ Hajat S, Chalabi Z, Wilkinson P, Erens B, Jones L, Mays N. Public health vulnerability to
44 wintertime weather: time-series regression and episode analyses of national mortality and
45 morbidity databases to inform the Cold Weather Plan for England. *Public Health*, 2016 (in
46 press, available online from 26/1/16)
47

48 ⁵ Jones L, Mays N. The experience of potentially vulnerable people during cold weather:
49 implications for policy and practice. *Public Health*, 2016 (in press, available online from
50 26/1/16)
51
52
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⁶ Communities and Local Government. The English Indices of Local Deprivation. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6871/1871208.pdf (5 January 2016, date accessed)

⁷ Abrahamson V, Raine R. Health and social care responses to the Department of Health Heatwave Plan. *Journal of Public Health* 2009,**31(4)**:478-489.

⁸ ~~Heady J. Excess winter mortality in Europe: a cross country analysis identifying key risk factors. *J Epid Community Health*, 2003, **87**:784-9. Maheswaran R, Chan D, Fryers PT, McManus C, McCabe H. Socio-economic deprivation and excess winter mortality and emergency hospital admissions in the South Yorkshire Coalfields Health Action Zone, UK. *Public Health*, 2005, **118(3)**:167-76.~~

⁹ Barnard L, Baker M, Hales, S Howden-Chapman P. Excess winter morbidity and mortality: do house and socio-economic status have an effect? *Rev Environ Health* 2008, **23(3)**:203-21.

¹⁰ Department of Communities and Local Government. *English Household Survey 2010/11*. www.gov.uk/government/publications/english-housing-survey-household-report-2010-to-2011. (7 October 2015, date accessed).

¹¹ Wilkinson P, Pattenden S, Armstrong B. *Cold comfort: the social and environmental determinants of excess winter deaths in England 1986-1996*. Joseph Rowntree Foundation, 2001.

¹² Watkins S, Byrne D, McDevitt M. Winter excess morbidity: is it a summer phenomenon? *Journal of Public Health Medicine* 2001, **23**: 237-241.

¹³ Ghosh A, Carmichael C, Elliot A, Green H, Murray V, Petrokosfy, C. The Cold Weather Plan Evaluation: an example of pragmatic evidence –based policy making? *Public Health* 2014, **128**: 619-627.

¹⁴ Health Protection Agency. *Evaluation Report – Cold Weather Plan for England 2011-12*. Health Protection Agency: 2012.

¹⁵ Wright, F. Old and cold: older people and policies failing to address fuel poverty. *Social Policy and Administration* 2006, **38(5)**:488-503.

¹⁶ National Audit Office. *Warm Front: helping to combat fuel poverty*. www.nao.org.uk/report/warm-front-helping-to-combat-fuel-poverty (7 October 2015, date accessed)

¹⁷ Day R, Hitchings R. *Older people and their winter warmth behaviours: understanding the contextual dynamics*. University of Birmingham, 2009.

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7 ¹⁸ Todd AM, Lusambili A, Homer C, et al. Understanding factors influencing vulnerable older
8 people keeping warm and well in winter: a qualitative study using social marketing
9 techniques. *BMJ* 2012, **Open2**:3000922.

10
11 ¹⁹ Day R, Hitchings R. 'Only old ladies would do that': age stigma and older people's
12 strategies for dealing with winter cold. *Health and Place* 2011, **17**:885-94.

13
14 ²⁰ Kovats RS, Hajat S. Heat stress and public health: a critical review. *Annu Rev Public Health*
15 2008;**29**:41-55.

16
17 ²¹ NICE. Excess Winter Deaths & Morbidity and the Health Risks Associated with Cold
18 Homes. NICE Guidance, 2015, www.nice.org.uk/guidance/ng6. (7 October 2015, accessed)

19
20 ²² NICE. Preventing excess winter deaths and illness associated with cold homes. Quality
21 Standard, March 2016. (11 April 2017, accessed)
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