Built Infrastructure for Older People’s Care in Conditions of Climate Change

Pilot Study of ‘Valley Village’ and ‘Hill Village’, Northern England

Report by Jonathan Wistow, Katie Oven, Lena Dominelli and the BIOPICCC Team

Executive Summary (pages with further details are also indicated)

This is a report on a pilot study. It is part of a larger project on how to make the built infrastructure supporting older people’s care more resilient to the effects of extreme weather events, including heatwaves, coldwaves and floods (see page 4).

We talked with key informants in two villages in northern England about their experiences of extreme weather events and how the infrastructures supporting health and social care delivery were affected. The research was carried out in August and September 2010, involving interviews and discussion groups with older people and representatives from the local authority, National Health Service, emergency services and a utility company. This was a small scale pilot study and the findings reported here only relate to the experiences of those individuals we spoke with, not to the general population. However, they did provide us with useful ideas to explore in further research (page 5).

The key findings are summarised below (with references to sections of the main report giving more details):

1. Older people and service providers were most concerned with events that disrupt day-to-day practices and routines. The effects of a prolonged coldwave and of a flood were reported to have been most disruptive. Although in future heatwaves and floods may become more common, it will still be important to plan for cold weather (Sections 4.2, 4.4(a)).

2. The local setting is important. This study was carried out in two close-knit former mining communities in a rural area. These had strong social networks and local co-operation; informal carers (family, friends and neighbours) in the
community helped care for older people, strengthening local resilience during extreme weather events (Section 4.4(c)).

3. Good networking between ‘informal’ carers and among the different ‘formal’ care and utility services were also important for the planning and delivery of local care services during extreme weather events. Generally these networks worked well in ensuring continuity of care for older people. However, it was also thought that more could be done to ‘link up’ the different agencies (including independent as well as public sector agencies), and share information to help to respond to extreme weather events in future (Sections 4.3, 4.4b,d, 5).

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1) Introduction

In the summer of 2010 the BIOPICCC research team\(^1\) undertook a pilot study in ‘Valley Village’ and ‘Hill Village’, in Northern England for the BIOPICCC research project\(^2\).

2) Background to the study

Health and social care systems include both ‘informal’ carers (family members, friends and neighbours) and ‘formal’ services (like the National Health Service, Local Authority Social Services and professional carers from other agencies). These care systems can be influenced by extreme weather events such as coldwaves, heatwaves and floods. Due to likely climate change in future, it is important to plan for possible changes in the frequency and severity of such weather-related hazards\(^3\). Protecting people’s health and wellbeing from the impacts of climate change is especially important for older people, particularly those in frail health, as they are particularly vulnerable to weather-related hazards. The number of people in these vulnerable groups is also likely to grow as older people will make up a larger part of the English population in future.

The overall aim of BIOPICCC is to develop, trial and disseminate tools for resilience and adaptation planning which will help to make built infrastructure supporting older people’s care more resilient to the effects of extreme weather.

The aims of the pilot study were:

i. to develop, and test ways to collect information from service providers and older people and engage these groups in discussions around climate change;

ii. to explore how infrastructure and service providers might be made more resilient to extreme weather events;

iii. to explore how individuals and communities can take action to help maintain health and social care service delivery during extreme weather events.

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\(^1\) Researchers from Durham University and Heriot-Watt University, Edinburgh

\(^2\) The BIOPICCC project (http://www.dur.ac.uk/geography/research/researchprojects/biopiccc/) is funded by the UK Engineering and Physical Sciences Research Council (EPSRC), as part of a major research programme on Adaptation and Resilience to a Changing Climate (ARCC) (http://www.ukcip-arcc.org.uk/)

The pilot focused on two neighbouring villages, which we will call ‘Hill Village’ and ‘Valley Village’. Both have a high proportion of older people. Valley Village has a population of less than 1,000 people and has experienced a number of floods in recent years, notably in 2000 and 2008. Hill Village has a population of about 4,000 people, is located on a steep hill and was severely affected by a prolonged cold spell in the winter of 2009/10.

3) Method

The pilot study consisted of interviews and ‘focus group’ discussions with older people and with representatives from local services. Both the interviews and focus groups were based on semi-structured questions relating to older people’s experience of living in the village, the support they received and relied upon and how well care services were maintained during recent extreme weather events. We also discussed what actions might be helpful to adapt and make services resilient to future climate changes.

The pilot study comprised six interviews with older people, ranging from 66 to 81 years of age. There are varying levels of vulnerability amongst people aged 65 and over. We therefore spoke to a range of people with different vulnerabilities including healthy older people and those with impaired vision, mild dementia, and severe arthritis. In addition, we met with a local community group for an informal discussion that provided further information about the areas covered. (Participants are listed in the appendix.)

The other focus groups were attended by both managerial level personnel and frontline workers from local services with a range of responsibilities including: adult social care; the local NHS; resilience and climate change planners; a water supply company. Individual interviews were conducted with some service providers unable to attend the focus groups.

Ethical issues were carefully considered including how to sensitively approach and discuss climate change and extreme weather events with older people and local practitioners. The research was approved by an appropriate independent Research Ethics Committee.

We made a thematic analysis of the responses to the questions asked to summarise the topics that informants told us were important. This approach helped to identify views that were shared and differences of view. Quotes have been selected to illustrate these themes and to highlight some of the differences that emerged in people’s responses.

Further details of the methods are available from the authors of this report.
It should be noted that the pilot was a relatively small scale study and the findings and conclusions may not apply more generally. However, this study gave us helpful ideas about questions to explore further in our larger research project.

4) Findings from the interviews with older people and interviews and focus groups with service providers

This section of the report presents and explores the different themes that emerged from the interviews and focus groups.

4.1) Localities and their services: Older people’s perceptions

In general, the older people interviewed enjoyed living in the area. They liked the rural setting and, in most cases, the sense of community in the locality. The participants that use social care services were happy with the services they received. They cited examples of flexible and adaptive care provision, which will be discussed in more detail later in this report (especially in section 4.4). In addition, older people were supported through strong local networks of informal cooperation, which enhanced resilience in the localities.

Despite these positive responses, all the residents interviewed commented on the decline in amenities in the area, especially the recent closure of the Post Office which local residents had previously successfully campaigned to keep open. The closure of the Post Office was regarded as a significant loss to the community. One respondent commented that:

‘The Post Office was the centre of village life. If I hadn’t been in for a week they’d phone up to see that everything was alright. Now that’s gone. That was one of the reasons for keeping it open; that and winter access.’

Viewed alongside the reported longer-term decline in services and amenities in the area, this example suggests that while isolated villages may appear very attractive settings for retirement, they may be too remote to provide the full range of services and opportunities that older people require for full and independent living. Some ways of addressing this issue may be by encouraging local social enterprise, granting local government more autonomy and ensuring that communities and neighbourhoods are given more influence in local planning decisions. However, our findings lead us to wonder whether these solutions will always work in places with limited finance, very small populations or lack of other resources.

4.2) Local networks of formal and informal care

The older people we spoke to were generally very positive about the formal and informal care they received. This can, at least in part, be attributed to the character of these village communities and their history. Both the villages were close-knit former mining communities. This appeared to generate strong social networks and
local co-operation. These networks apparently enhanced local resilience during the extreme weather events.

The importance of close family, particularly their daughters, but also sons and grandchildren in providing informal care was emphasised by the more vulnerable participants who needed health and social care. For example, an older lady with mild dementia and partial blindness commented that:

‘I don’t get any help, nor meals-on-wheels. But I’ve got a daughter you see and she does everything.’

In most cases, family would be around to provide assistance during an extreme weather event. The pilot study suggests that older people are able to ‘tap into’ different forms of care when they need to. However, this reliance on family members raises the question of how to link family networks providing informal care to the more formal networks of care provided locally.

One respondent with severe arthritis explained how they had learnt from past experiences how to adapt their homes and behaviours to their circumstances. For example, having fallen in the past this person now keeps the telephone, a torch and medication on a mobile trolley that can be moved around the house and kept close by at all times.

Older people may worry when they do not know what is happening; for example, if they are unsure if their services will be provided during extreme weather events. However, most carers called the older people we interviewed to inform them of delays in care provision, thereby allowing them ‘to settle’ and as the older people said, ‘they [the carers] always come through’. The Council keeps people well-informed about their care provision and any changes in routine are communicated through the local telecare system. Consequently, respondents felt that they ‘have never been isolated’. The Council also appears to respond by providing extra care when needed. For example, if there are problems and a carer cannot attend an appointment, or if members of the family are unable to provide routine care as usual, then this will be covered by the domiciliary care service.

The domiciliary care team deliver fewer services to people in the area than in the past, which is partly attributed to the introduction of mains gas, which has reduced the numbers of older people needing fire lighting services. Nevertheless, the domiciliary care service provides a highly visible presence in the localities due to their distinctive uniforms. This makes it easier for other local services, such as the local postal delivery service, to inform the domiciliary workers about any significant changes in older people’s patterns of behaviour.

The domiciliary care workforce is highly localised, with approximately 90% of the local workforce also living in ‘Valley Village’ and ‘Hill Village’. One service provider commented that:
‘...when you have the times of the floods and especially the snow and ice and that last year we were able to continue to deliver the service on foot. That’s the only reason we’ve been successful because of people being able to get there. But we were also relying on good will because people had to come out when it wasn’t their day to work.’

This finding is discussed in more detail in section 4.4 the report.

4.3) Identifying the key parts of the infrastructure supporting health and social care

Frontline service providers identified the road network as being particularly important for the delivery of health and social care services to older people. The relatively remote locations of the villages are significant here. Some independent care providers could not access the villages from the nearby towns where they lived during the prolonged cold spell and asked the local domiciliary care team to cover their services. This was communicated through the emergency telephone base in the Civic Centre and local public service managers responded by helping to care for users that were normally looked after by independent care agencies.

The electricity supply was identified as important for operating the water supply infrastructure. The Water Company indicated that they are reliant on the power supply to operate parts of the water system such as pumps. In certain situations, the ‘cascading of events’ is a critical issue. For example, heavy rainfall can lead to the sewerage system being overwhelmed by the amount of water, causing floods, leading to electricity substations being ‘knocked out’, which in turn ‘knocks out’ the pumps for the water supply and affects services like hospitals. It was reported that increasingly water, electricity, gas, rail industries etc. are aware of these issues and are looking to develop contingency plans for emergency situations.

In addition, the electricity supply was identified as being particularly significant for equipment used to provide medical care for older people, such as hoists and oxygen supplies. The Council has limited access to back-up generators and battery packs but the electricity companies are the service providers with responsibility for this. The electricity companies have their own lists and priorities of vulnerable people and know which older people have equipment requiring electricity (e.g. dialysis machines). Data sharing amongst agencies of lists of vulnerable people requires permission, co-ordination and co-operation. However, there was evidence that private companies are not always willing to share information about who they have on their records as ‘vulnerable’, which makes it difficult to co-ordinate action, especially during emergencies.

Buildings (other than people’s homes) were not mentioned during the focus group discussions with service providers. This may reflect the fact that the extreme weather events we were focusing on did not impact directly on buildings providing older people’s health and social care.
4.4) **Extreme weather events**

Over the course of the interviews and focus groups the research team asked older people and service providers about extreme weather events that had been experienced in ‘Valley Village’ and ‘Hill Village’. Discussions centred on, but were not limited to, the floods of 2000 and 2008 and the prolonged cold spell in 2009/10.

**(a) Perceptions of extreme weather**

What appears to matter most to older people is what disrupts day-to-day practices and routines. For those we interviewed, the prolonged cold spell in the winter of 2009/10 was more disruptive, blocking local roads and pathways. This was a particular concern for older residents in ‘Hill Village’, due to the village’s location on a steep slope and the problems this caused for access into, and mobility around, the village.

However, as already noted above, changes to service provision were communicated well to those receiving care services, and there was a general view that the community ‘pulled together’ during this period. As a result, the flood event of 2008 caused minimal disruption to most older peoples’ every day routines. Those older people who were evacuated reported being well catered for by local service providers and informal networks of care. For example, in the Village Hall/Emergency Response Centre, the people who were evacuated were given a hot drink, something to eat and temporary accommodation was found or family members picked them up.

The common view of extreme weather events amongst older people was one of acceptance and stoicism, as illustrated by the following quote:

> ‘You’ve just got to accept there is bad weather, you can’t turn a switch to make the weather better.’

For example, an older couple who were evacuated by four wheel drive vehicle were not concerned by the flooding. Another older lady with severe arthritis and in a wheelchair was not concerned about the weather, possibly because she was not directly affected by the flooding. She accepted that flood events could be difficult, but she was more concerned about thunder and lightning which she did not like.

Service providers working in the localities had a similar view of the impacts of extreme weather, considering the cold winter and snow of 2009/10 to be the most challenging weather they have had to deal with. A care provider commented that:

> ‘I think we were more affected by the snow last winter than anything ever before—certainly with the winter and the snow we were really hit with that.’

A representative of the fire service thought there had been higher rainfall over the last ten years and considered this to be the most problematic form of ‘extreme
weather’. He said the Pitt Review (2008)\(^4\) undertaken following the 2007 floods in England, had led to improved equipment for the fire service. For example, the higher volume pumps that they now have are necessary for dispersing the higher volumes of water that they have been dealing with in flooding incidents.

Most of the older people interviewed were unsure how to prepare for an extreme weather event. Raising awareness around extreme weather events therefore presents a significant challenge but this has to be done in a sensitive manner to avoid alarming people unnecessarily. Furthermore, those interviewed were generally happy with the help and advice they received during an extreme weather event and could not identify any additional information or help that they would like from the Council or emergency services. This was largely because the council workers had knocked on people’s doors to check they had everything they required. In addition, a number of older people reflected positively upon the active role that their local councillors played during and after the flood in checking that everything was alright.

(b) Impact of extreme weather on infrastructure

Service providers and older people had similar views about the infrastructure and the impact of extreme weather.

*Roads*

In this pilot study, roads were considered to be the most important\(^5\) part of the infrastructure because it enabled most of the service providers to provide their services. This related to access to service users and access to other parts of the infrastructure.

During the flood events, the roads were the main problem for the emergency services, in particular, the fire and rescue service. During the 2008 flood in ‘Valley Village’ the roads were blocked by flood water and abandoned vehicles. The fire engines were relatively self-sufficient: they had their own power supplies and on-board pumps and could have helped the community earlier, but the main access road was blocked by cars. They had to take a considerable detour as a result of this. According to local flood wardens and service providers, lessons have been learnt about how to coordinate activities during flood events. In particular, access roads will be closed to general traffic sooner to avoid private vehicles getting stuck and blocking access for emergency vehicles.

The significance of the road network was also evident in the planning and delivery of local care services. For example, unnecessary travel to and from the area was discouraged to reduce the chances of vehicles becoming stuck in the snow or ice.

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\(^5\) This perhaps reflects the fact that the electricity supply did not fail reducing the knock-on effects to other parts of the infrastructure system.
‘The boss said don’t come into the office, stay in the village and sort it out’.

Consequently, during the cold spell, the workforce was delegated considerable local discretion to manage resources to meet local needs. Older people most in need or vulnerable were prioritised. Services were also prioritised so that people’s key daily needs were met, for example, help with personal care was prioritised over laundry or ironing. In addition, service delivery was reassigned amongst care workers so that carers provided services to older people closer to where they lived and within walking distance. The above examples demonstrate a willingness to be flexible, an ability to re-deploy resources within and across services as circumstances require, aided by good communication and coordination between providers in different sectors. It also presupposes a working communications infrastructure.

Utilities

The local utility infrastructure appears to have been resilient to these extreme weather events and continued to function throughout. For example, the older people interviewed did not report any weather-related cuts in power or the loss of other utilities including water and gas. However, service providers identified a small number of power cuts as a direct result of power cables being damaged by gale force winds, which caused a loss of heating in the area (although it was noted that the flooding events did not lead to a loss of electricity).

Providers living and working in the area reported that electricity supply is a lot more reliable than it used to be. Nevertheless, the loss of electricity is of greater concern for service providers because they rely on electric equipment (for example, lifting equipment) much more than they used to. Loss of electricity supply can be serious for other purposes, e.g., refrigeration during a hot spell is crucial for those storing insulin to deal with diabetes.

The electricity companies were generally responsive to requests for back-up power and a community nurse interviewed indicated that they would call on behalf of service users if they required back-up electricity and this would be delivered quickly.

As previously discussed there were concerns amongst local practitioners about data sharing from their risk registers between agencies as these contain confidential, personal information. This issue also raises questions about the capacity/potential that agencies have to co-ordinate information sharing. While data protection issues were important, there was concern that more could be done to ensure better local co-ordination of this kind of information. Locally, the flood warden scheme maintains a list of vulnerable people.

(c) Impact of extreme weather events on formal and informal care

Those older people with families living nearby would rely on them in the first instance should there be an extreme weather event and would stay with them if they had to
leave their homes. They therefore seemed less reliant on formal providers in the first instance. However, those without such social networks in the locality relied more on the formal services, especially the emergency services as a first point of contact, as did one newcomer to the area whose house was flooded. The nature and severity of the hazard is also significant here as, for example, family can help to move personal possessions but the fire service is needed to pump the water out.

The older people we interviewed were most concerned about having spare clothing with them. They expected that their families would collect medicine on their behalf, if necessary. Those that had to leave their homes during the recent flood felt that the disruption was not long enough to affect the services they received or the medication they relied upon.

Through a range of informal and formal care networks the more vulnerable older people we interviewed managed to remain well-supplied with food and medication during the prolonged cold spell. The older people were supported by a range of people and providers, including neighbours, family and service providers (such as the domiciliary care service). In addition, it was noted that the local pharmacy delivered medicine to older people if they were unable to collect it themselves.

The impact of harmful weather conditions on older people in the localities appear to be mitigated by local resilience in the community. The public sector providers of care covered for the independent sector during the prolonged cold spell, providing services for older people that were not their service users. The responsiveness of the local public sector providers can be attributed, at least in part, to the localised workforce. It also suggests a strong ‘duty of care’ amongst this workforce. This ‘public spirited’ ethos meant that some providers worked beyond their formal responsibilities, aiding continuity of care.

**(d) Planning for extreme weather events**

The Council has recently put together an ‘Adapting to Climate Change Working Group’. This group works with a wide range of partners, including Northumbrian Water and the Environment Agency and will oversee various severe weather episodes that might occur. In addition, the Council is developing a severe weather plan. Emergency services work closely with local government in the development of these plans and there is a shared commitment towards joint planning and working here. Service providers have local planning meetings (quarterly events). These are attended by police, fire, ambulance, hospital and local authority services. The emergency services consider consistency to be important, providing a ‘command and control’ response system to deal with emergency situations.

They have a ‘major incident group’ – ensuring that those who need emergency services, such as acute hospital services are treated and then a ‘recovery group’ – who focus on ‘normalising’ issues.
Maintaining lists of vulnerable people can be difficult because needs change and populations move around. However, organisations do have the capability to know who is vulnerable, so in the sub-region they are developing a network across social services, community nurses, GPs etc. who will know who is most vulnerable on their lists and if there is an extreme weather event, contacts with local service providers will be made to see who is most vulnerable.

It was reported that a water pumping machine was brought to the locality by the fire service but this was due to a phone call from a local resident living in the area. It was suggested to the researchers by participants that if the call had been half an hour later this pump would have gone to a town in the north of the region, which was also flooded at the same time. This experience suggests that these resources are in short supply and might be allocated on a first-come-first served or ad hoc basis. It also raises the question of when there are limited resources how and who chooses how these are allocated.

A representative from a water company raised the issue that following a flooding event a certain level of risk may have been exceeded. Under these circumstances properties can be viewed as being uninsurable by insurance companies. It was argued, therefore, that making houses more resilient in the future when doing repairs is particularly important in relation to climate change. Hazards exceeding anticipated thresholds are increasing in frequency. Given this apparent trend it was suggested that ‘to go back to what you were comfortable with is almost certainly a wrong decision’. In other words adaptations to properties (such as door guards, waterproof materials, and raising electrical outlets) should be made to enhance the resilience of houses when repairs are made. Additionally, these findings raise the question about the actuarial criteria used to assess risks by insurance companies. Is this necessarily the best way of assessing risks?

5) Key findings summary

We identified the following key findings from the study:

Older people and service providers were most concerned with events that disrupt day-to-day practices and routines. In this case it was the effects of a prolonged coldwave of about six weeks which affected local roads and pathways, especially in the ‘Hill Village’.

Local setting is important. This study was carried out in two close-knit former mining communities in a rural area. This appeared to generate strong social networks and local cooperation, and strengthened local resilience during the extreme weather events.

Social networks were also evident in the planning and delivery of local care services. The majority of the local authority’s domiciliary care workforce lived in the local area (and have historically done so). During the cold spell the workforce was delegated
considerable local discretion to manage resources to meet local needs. This worked well in ensuring continuity of care for older people. However, there were concerns amongst local practitioners about data sharing between agencies, in particular sharing risk registers which identify vulnerable older people between agencies.

The public sector care providers covered for the independent sector whose employees were often unable to get to the area during the prolonged cold spell due to impassable roads. The responsiveness of local public sector care providers (who provided services for both their own service users and those of the independent sector) can be attributed, at least in part, to the localised workforce and the strong social networks in the area.

In addition to these key findings the issues below may be of relevance to future planning:

- It is important to consider how to maintain, and enhance, the strong local resilience in the area through supporting formal and informal networks of care into the future.
- The informal networks of care are apparently strong but may not always retain this strength (e.g. key informal carers may be on holiday when extreme weather events occur). Secondly, if extreme weather events become more severe and more frequent these networks may need to be supplemented by more formal support.
- To consider how the Joint Strategic Needs Assessment (JSNA) can fully reflect the possible future needs among older people arising from climate change. In addition, these needs can be reflected in the new joint health and well-being strategies, which the Health and Well-being Boards will be required to produce.
- Older people can provide a valuable resource in disseminating information about their own experiences. For example, older people who have learnt from experiences of bad weather and falls etc. can to talk to other older people about how they have adapted their own behaviours to become more resilient. There is the potential to make links to community groups and the Environment Agency/Red Cross who are working with older people to raise awareness of flooding etc.

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6 PCTs and local authorities are required to produce a JSNA of the health and wellbeing of their local communities.
7 Forums for local commissioners across the NHS, public health and social care, elected representatives, and representatives of HealthWatch to discuss how to improve the health and wellbeing outcomes of people in their area.
Appendix: list of Participants

Older people:

<table>
<thead>
<tr>
<th>Older Person</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant A</td>
<td>Female, 81 years old, living alone, has severe arthritis.</td>
</tr>
<tr>
<td>Participant B</td>
<td>Female, 75 years old, living alone, has mild dementia and is partially blind.</td>
</tr>
<tr>
<td>Participant C</td>
<td>Female, 77 years old, living alone, has a pacemaker but in generally good health.</td>
</tr>
<tr>
<td>Participant D</td>
<td>Female, 66 years old, living alone and in good health.</td>
</tr>
<tr>
<td>Participant E</td>
<td>Male, 70 years old, living with his wife in good health on some medication.</td>
</tr>
<tr>
<td>Participant F</td>
<td>Female, 71 years old, living with her husband, has diabetes and limited mobility.</td>
</tr>
</tbody>
</table>

Service providers:

The focus groups were attended by managerial and frontline personnel with a range of responsibilities in the local authority the NHS; and a water company.

In addition, representatives from the community and voluntary sector; the fire and rescue service; and the NHS were interviewed over the telephone.