



Local Planning for the Care of Older People during Extreme Weather: a survey of NHS Integrated Care Boards

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Executive Summary

Extreme weather events are becoming more frequent and severe in England. Flooding, storms and heatwaves negatively impact health, increase hospital admissions risk, and disrupt health and social care delivery. Local planning is crucial to ensure communities are prepared for extreme weather and can respond to the challenges generated by these events. Climate adaptation planning in the healthcare sector is particularly vital for vulnerable populations, such as older people and people living with frailty.

This report presents the findings of an online survey conducted in England to assess local planning for extreme weather events and the impact on the health care of older people and people living with frailty. The survey highlights strategies and interventions to manage challenges in the health care and protection of older people during extreme weather events. The report also provides recommendations for improving preparedness and response to extreme weather and aims to encourage further research and action in this critical area.

The survey targeted Senior Managers working in Integrated, Unplanned, and Out-of-Hospital Care within England's 42 Integrated Care Boards (ICBs). Despite sufficient advertisement and the provision of incentives to complete the survey, only 17 individuals responded. The survey participants perceived floods to cause more moderate to severe disruptions in healthcare delivery than heatwaves. However, only three out of 17 participants indicated that their ICBs had specific plans to manage extreme weather events, with the vast majority considering weather hazards in their general emergency planning.

Most participants cited the availability of urgent/out-of-hours general practitioner (GP) home visits as a response measure to heatwaves, followed by the ambulance service and Urgent Community Response teams. In the event of loss of bed capacity in a local hospital due to flooding, most ICBs considered diverting ambulances and transferring patients to other hospitals. In addition to heatwaves and floods, some ICBs also considered transport for staff and access to patients' homes when planning for snow.

Our recommendations are divided into two categories. First, at a system level, ICBs should collaborate with local providers to raise awareness of the risks of extreme weather for vulnerable individuals and incorporate these risks into business continuity plans. Additionally, ICBs should work with providers and the third sector to educate the population on the risks of extreme weather and how to mitigate them, enabling older people, their families, and caregivers to take necessary precautions. Secondly, at a provider level, healthcare providers should ensure that their services are designed and organized to allow continuous care during extreme weather events. This is crucial as such events can disrupt healthcare delivery, which can have severe consequences for patients requiring ongoing care. Ultimately, these recommendations collectively aim to prepare and safeguard the healthcare system, particularly vulnerable populations, in the face of extreme weather events.

Introduction

Extreme weather events, such as heatwaves, floods, and heavy precipitation, are becoming more frequent and severe in England, causing significant health impacts and damage to care infrastructure. For example, 2022 was the hottest summer in the UK, with three heatwaves (defined as when a location records at least three consecutive days with daily maximum temperature at least meeting the location-specific temperature threshold). During the four-day July heatwave, England recorded temperatures above 40°C for the first time, and there was widespread recording of tropical nights (minimum temperature above 20°C) in the UK. For the first time, a level 4 alert for the UK Health Security Agency (UKHSA) heatwave plan was issued and a Met Office red warning for extreme heat since the inclusion of heat within the National Severe Weather Warning Service. This was followed by a longer but less severe August heatwave, with locations recording over 30°C for eight consecutive days¹. Heatwaves have a range of impacts on NHS staff, hospital equipment and infrastructure, and the quality of care². Hospital admissions for older persons increase during heatwaves, and so does mortality^{3 4}.

Therefore, planning local services is crucial to ensure that the healthcare sector can undertake preventive actions to avoid health crises in vulnerable individuals.

In this report, we present the findings of an online survey we conducted in England to assess local planning for extreme weather events and the impact on the health care of older people and people living with frailty to inform Senior Managers in Integrated, Unplanned, and Out-of-Hospital Care. We designed a survey to collect information on what Integrated Care Boards (ICBs) have done so far to prepare for extreme weather and the measures they implemented to protect and ameliorate the health and well-being of older adults. We also aimed to understand the barriers to climate adaptation in the healthcare sector in England and identify areas requiring improvement.

Methods

An online survey was developed and targeted to Senior Managers working in Integrated, Unplanned, and Out-of-Hospital Care within England's 42 Integrated Care Boards (ICBs). To reach this population, we used two methods: firstly, we advertised the survey on the Community Health Services group of the FutureNHS Collaboration platform in June 2022 and then again immediately after the second heatwave in July. Secondly, we accessed the NHS England address book to identify all the programme directors or transformation leads in Integrated, Unplanned, and Out-of-Hospital Care. In cases where no ICB senior manager contact was available, the Emergency, Preparedness, Resilience and Recovery lead was contacted. For the last survey round, we used shopping vouchers to incentivize participation.

The survey was developed using UKHSA software (SelectSurvey), and the data was stored following GDPR guidance regarding personal data. The survey questionnaire and instructions are displayed in Appendix 1.

Anonymised data collected was exported to Microsoft Excel for cleaning and coding. Finally, the data were analysed using descriptive statistics to summarise and interpret the results.

As the survey was conducted with NHS staff in their professional capacity for service evaluation and not classed as research, ethical approval by an NHS Research Ethics Committee was not required according to the NHS Health Research Authority guidance⁵.

Results

Sample description

We received responses from 17 individuals—only five provided complete responses, including answers to open-ended questions.

We summarise the results of the 17 responses, representing a catchment area of 20 English counties in five ICBs (Figure 1a). Figure 1b shows the characteristics of the five ICBs included in the analysis.

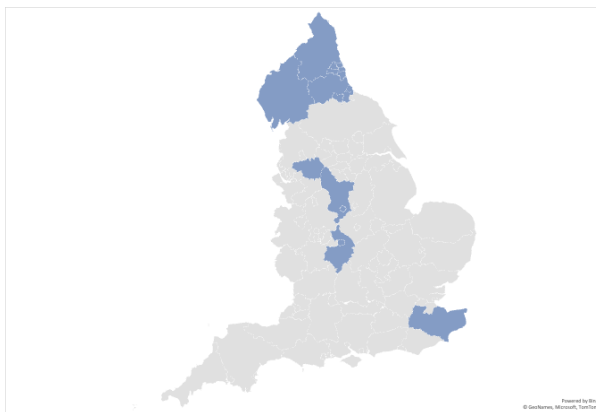


Figure 1a – English counties in the analysis

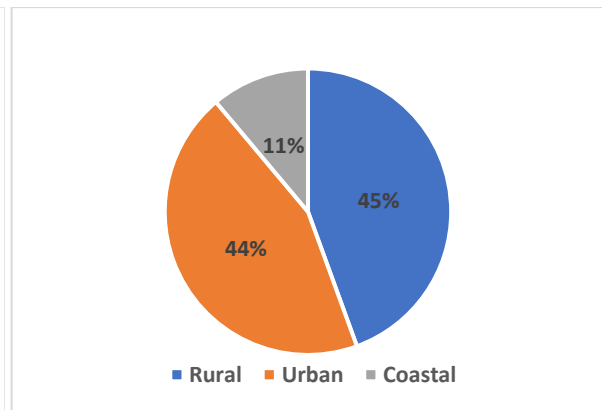
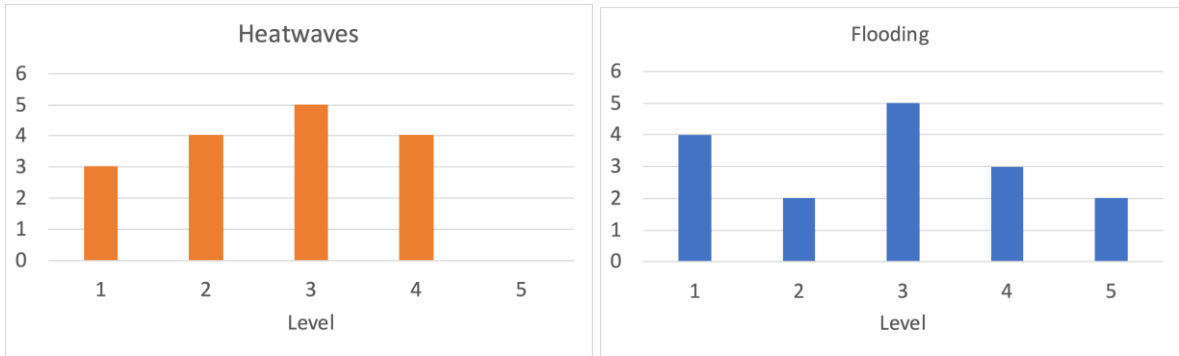


Figure 1b – Geographic characteristics of the sample

Impact of extreme weather on local health care delivery

Most respondents report an impact of heatwaves and floods on health care delivery (Figures 2a and 2b), with floods causing more severe disruption. However, there was more variation in the flooding experience than in heatwaves.



Figures 2a and 2b – Impact of heatwaves and flooding on health care delivery. 1 indicates no disruption of service delivery, and 5 indicates complete disruption of service delivery.

Figures 3a and 3b show the respondents' catchment area identified risk of flooding and the different types of floods that may occur:

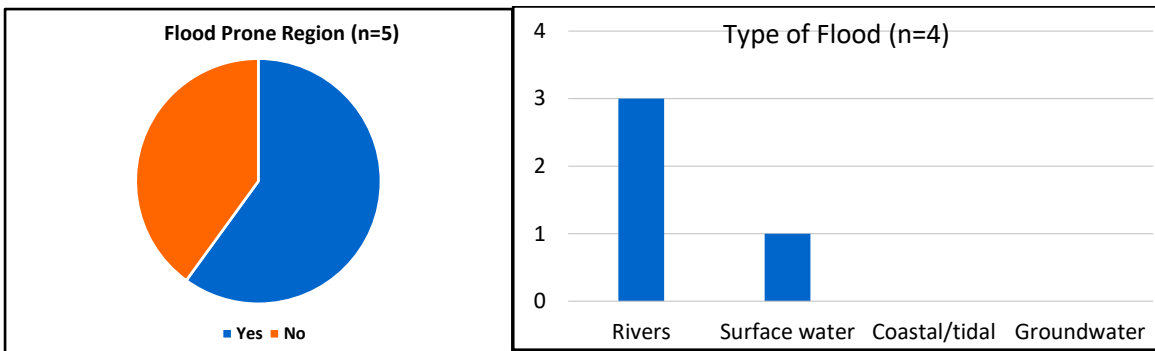


Figure 3a – Risk of flooding

Figure 3b – Type of flooding

Emergency Planning

Three participants indicated their ICBs had specific plans to manage extreme weather events. Most considered extreme weather in their general planning (Figure 4a). Among those who reported having plans to manage extreme weather-related care disruption, most stated that they could quickly scale up services to respond to immediate needs (Figure 4b).

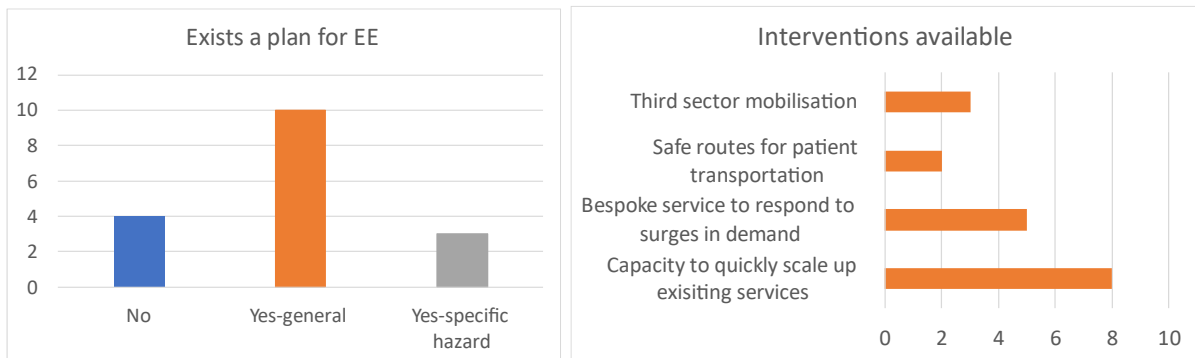


Figure 4a – ICBs plans for extreme weather

Figure 4b – Details of emergency plan

Among the participants who reported not having a plan to address healthcare disruptions during extreme weather events, one cited a lack of need. At the same time, another mentioned a need for such a plan but cited a lack of governance or leadership support. Finally, a third participant reported having arrangements under their organization's business continuity plans to provide services during such events.

Figure 5 illustrates the level of activity of local resilience fora in planning for extreme weather, with a scale ranging from 1 (indicating no activity at all) to 5 (showing very high levels of activity):

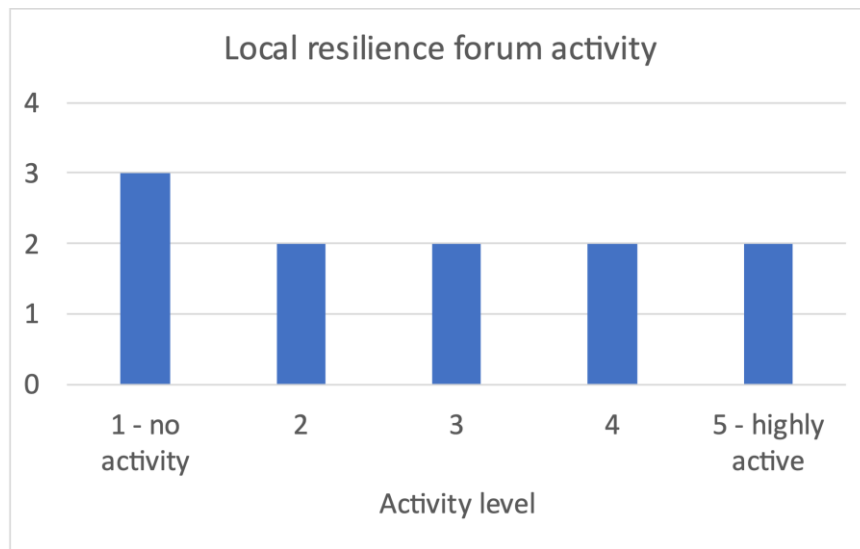


Figure 5 – Level of activity of local resilience fora in planning for extreme weather

Heatwaves

When queried about heat alerts during heat waves, most respondents (56%) indicated they lacked awareness of such services within their localities. The remaining respondents (44%) reported a lack of availability of such services.

Regarding specific response measures during heatwaves for people living with frailty, most respondents cited the availability of urgent/out-of-hours general practitioner (GP) home visits. Following this, the ambulance service and community-led response teams were the subsequent most frequently used measures. Figure 6 describes all the interventions available to respond to frail older people's unplanned care needs during heatwaves and their frequency.

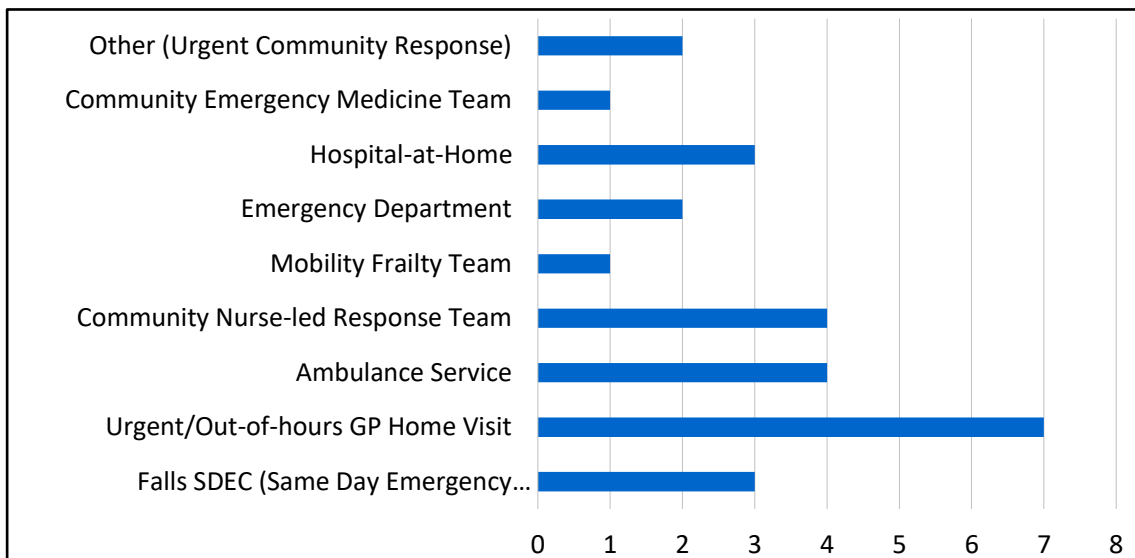


Figure 6 – Interventions to manage frail older people's unplanned care needs during heatwaves

Concerning the capacity of local health care services to respond to an anticipated scenario of heatwaves affecting a growing number of people living with frailty within their respective localities, the survey results indicate that 33% of respondents were confident that the combination of available services within their areas would be able to accommodate the increased demand. However, a considerable majority of respondents, amounting to 66%, indicated that they were either unable to address such an escalation of need or were unsure about the adequacy of their current services to meet the requirements.

Most survey respondents preferred community-based services, such as Urgent Community Response (UCR), as a potential alternative to conventional hospital conveyance. It should be noted, however, that the availability of such services may be limited, as some respondents indicated that these services were only available during the daytime.

A respondent reported that nurses and therapists staffed their local UCR services. In addition, their Primary Care Networks (PCNs) included Advanced Care Practitioners (ACPs) to provide clinical input at home. One respondent indicated that the UCR team would conduct initial assessments to ensure patient safety. Afterwards, the case would be referred to the early intervention community team for further input.

In addition to these community-based services, an Ambulance Service reported that they could discuss cases with frailty consultants based in the Hospital for clinical advice on further management. Depending on the situation, this could involve arranging same-day emergency care within the Hospital or requesting an urgent community response assessment.

It is important to note that the availability and effectiveness of these services seem to vary across different localities, highlighting the need for further research to evaluate their impact and identify potential areas for improvement.

Survey respondents gave different examples when asked about the availability of enhanced services to support and promote assessment and management during heatwaves. Most

reported that they could provide an emergency package of care to support activities of daily living, including encouraging fluid intake. Moreover, respondents said they could provide hospital-at-home care or a short admission to an acute frailty unit in the local Hospital. Figure 7 describes the range of services reported by survey respondents to manage a frailty syndrome (in this case, delirium) during heatwaves.

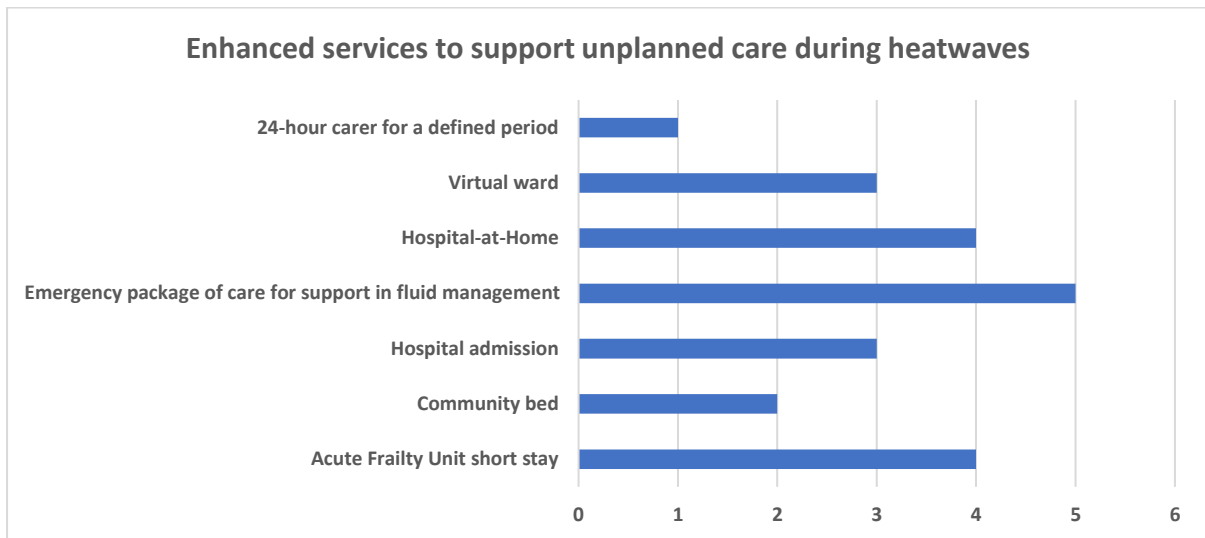


Figure 7 – Services available to assess and manage frail older people during heatwaves

Flooding

We inquired about the measures to take if a local hospital experienced a sudden 30% reduction in bed capacity due to flooding in a building section. Respondents provided a variety of actions to alleviate the effects of flooding on the hospital facility. The top priority for most respondents was to redirect ambulances to nearby hospitals and transfer patients. Figure 8 below illustrates the remaining options identified by the respondents to manage the sudden reduction in bed capacity caused by the flooding of the hospital building.

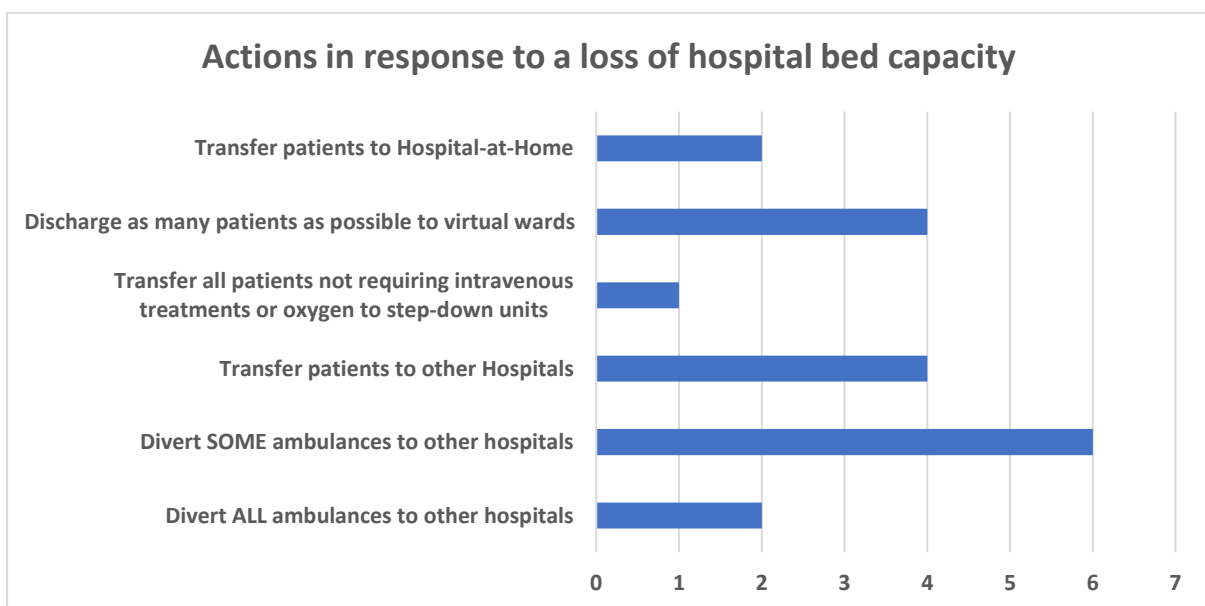


Figure 8 – Actions in response to a sudden bed capacity loss in a local hospital

We also inquired about the long-term sustainability of these actions if flooding events were to occur more frequently in the near future. Again, 57.1% (n=7) believed that extreme weather events such as floods would not significantly affect the available options for managing sudden decreases in bed capacity.

Similarly, we asked about potential disruptions to care homes during a flood. Respondents suggested a combination of interventions to manage the sudden closure of residential care homes, including transferring residents to hospitals and temporary accommodation, such as sports centres. However, it should be noted that local authorities are responsible for planning for care homes. Therefore, respondents did not have significant input on managing accommodation in such situations. Some respondents mentioned that virtual wards for residents in care homes are currently being piloted and could be a helpful resource to ensure adequate care plans in a future scenario like this when residents have to be urgently relocated.

[Other extreme weather events](#)

We also provided respondents with an opportunity to comment on other extreme weather events that were not explicitly targeted by this survey. For example, two respondents mentioned snow as a weather hazard and indicated they had measures to ensure staff could come to work despite extreme snowfall. Other measures included appropriate driving training to enable staff to assess patients at home under such conditions safely.

Conclusions

This survey demonstrates that extreme weather events, particularly floods, are perceived as having a moderate to severe impact on healthcare delivery in England. Most Integrated Care Boards (ICBs) have embedded plans for extreme weather events into their general planning and do not have specific plans to address climate-related healthcare needs.

Heat alerts with general advice are not routinely sent to vulnerable individuals, such as those living with frailty. During heatwaves, most assessments are carried out by General Practitioners (GPs), followed by Ambulance Services and Urgent Community Response teams. However, only one-third of respondents reported being able to meet the increased demand. The most reported strategy to avoid hospital admissions is the provision of an emergency package of care.

During floods, participants reported using a combination of approaches to manage the loss of hospital bed capacity, such as diverting ambulances, transferring patients, or discharging with safety nets in place. In addition, if residential care is lost, Local Authorities are responsible for transferring individuals to similar settings.

Finally, respondents mentioned plans to ensure the continuity of transportation during snow events.

This survey provides new insights into local planning for extreme weather and the health protection of older people and people living with frailty. The report highlights the local strategies and interventions to manage challenges in the health care of older people during extreme weather events. The next section provides recommendations for improving preparedness and response to extreme weather. Finally, this report is the first attempt to summarise the challenges and opportunities involved in local planning for extreme weather and older people in England and aims to encourage further research and action in this critical area.

Recommendations

Our recommendations aim to address the challenges of extreme weather events to the health care system. These recommendations are divided into two groups that target different levels of the health care system.

Firstly, at a system level, we recommend that Integrated Care Boards (ICBs) implement targeted strategies to manage healthcare disruption caused by extreme weather events. Specifically, we recommend that ICBs engage with local providers to ensure they know the risks of extreme weather for vulnerable people and that their business continuity plans consider those risks. Also, we recommend that ICBs collaborate with providers and the third sector to enhance population knowledge of the risks posed by extreme weather and how to modify them so older people, their families, and carers can take appropriate steps to prepare and protect their health and well-being.

Secondly, at a provider level, we recommend that healthcare providers ensure that their services are designed and articulated to allow for continuity of care during extreme weather events. This is particularly important as extreme weather events can disrupt the delivery of healthcare services, which can have severe implications for patients who require ongoing care.

In summary, our recommendations aim to address the challenges posed by extreme weather events to the health care system. By implementing targeted strategies at a system level and ensuring continuity of care at a provider level, the healthcare system can better prepare for and respond to extreme weather events, ensuring the health and well-being of all patients, particularly vulnerable populations.

Acknowledgement and disclaimer

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Appendices

Appendix 1

Survey:

Intro

Local Planning for Unplanned Care During Extreme Weather: Tell Us Your Experience!

England is increasingly experiencing extreme weather, including heatwaves in 2018, 2019 and 2020, as well as heavy rainfall and river flooding.

Extreme weather events disproportionately affect older persons and people living with frailty leading to an acute demand for health care.

This survey will take 10-15min, and we really appreciate your collaboration to learn how the nation is adapting to the demand for unplanned care during extreme weather events.

The survey results will be used to identify the responses and interventions that have been developed in England to respond to challenges in increased demand for health care during heatwaves and flooding. Anonymized Case study guides will be produced from the identified interventions and shared with the ICSs and NHS.

The NIHR Health Protection Research Unit (HPRU) in Environmental Change and Health and the UK Health Security Agency aim to understand the impact of climate change on health and ensure that healthcare delivery is not disrupted, so we all can plan for our changing climate. To learn more about HPRU, please [click here](#). If you have any questions about the survey, please contact Jennifer.israelsson@ukhsa.gov.uk.

The answers collected in this survey will be anonymized. All information from individuals or individual ICS will not be identifiable, and the data collected will be stored according to national standards. We will use this research to build illustrative case studies to help ICSs plan better for extreme weather. We will share with you the final report with case studies at the end of the project.

The survey will close at 11.59 pm on Tuesday 24th June 2022.

Survey Link

Many thanks for your collaboration.

Kind regards]

Part One – Extreme Events and their impact on Local health care

1. England has experienced very hot summers in recent years (in 2018, 2019, and 2020). To what extent have any of these recent heatwaves affected health and social care DELIVERY in your region?
 - a. Likert scale 1-5
2. England has experienced some extreme rainfall events (thunderstorms) and river flooding in recent years. To what extent have any of these recent extreme events affected health and social care DELIVERY in your region?
 - a. Likert scale 1-5
3. Do you have specific ICS plans for extreme weather such as heatwaves or flooding?
 - a. Yes, under general emergency planning.
 - i. Please select all the interventions available
 01. Capacity to quickly scale up existing services
 02. Bespoke service to respond to surges in demand
 03. Safe routes for patient transportation
 04. Third-sector mobilization
 05. Other. Please specify.
 - b. Yes, specific plans for climate hazards.
 - i. Please select all the interventions available
 01. Capacity to quickly scale up existing services
 02. Bespoke service to respond to surges in demand
 03. Safe routes for patient transportation
 04. Third-sector mobilization
 05. Other. Please specify.
 - c. No
 - i. Why? Please select all that apply
 01. There was never a need
 02. There is a need, but there are logistic barriers to implementation
 03. There is a need, but there are budgetary constraints to implementation
 04. There is a need, but there are no guidelines on how to deliver an effective and efficient service
 05. There is a need, but lacks leadership/governance support
 06. There is a need, but I have no time allocated to
 07. Other. Please specify
4. [Optional] If answering yes to the previous question, could you please provide some more details of your local plan?
5. How active is your 'Local Resilience Forum'?
 - a. Likert scale 1-5

Part Two – Heatwaves

Mary is an 87-year-old lady who lives in your catchment area. She lives alone, and her daughter Susan visits once a week to help with the shopping. Mary fears leaving her house since her last fall over a year ago. Her memory is not as good as it used to be, but she never had a formal cognitive assessment.

Heatwaves and hot summers are becoming more common in the UK. In 2019, the highest daily maximum temperature of 38.7°C was recorded in Cambridgeshire.

Today is a scorching day. Susan worries about her mother's welfare and calls to check in with her. Unfortunately, Mary doesn't pick up the phone. Susan goes to her mother's house and finds her on the floor next to her chair. Mary seems more confused than usual and can't recall how she fell. Although there are no apparent injuries, Susan is concerned about Mary's health and welfare.

1. In your area, would have Mary received a heat alert with general advice and safety network details?
 - a. Yes
 - b. No
 - c. Don't know

2. What rapid assessment services do you have in your area? Please select all that apply:
 - a. Urgent/Out-of-hours GP Home Visit
 - b. Emergency Department
 - c. Community Emergency Medicine Team
 - d. Ambulance Service
 - e. Community Nurse-led Response Team
 - f. Hospital-at-Home
 - g. Mobile Frailty Team
 - h. Falls SDEC (Same Day Emergency Care)/2Hour2Day
 - i. Other. Please specify [open answer]

3. If the above situation affected 1 in 100 people living with frailty in your area, is there enough capacity in the available services to meet that demand?
 - a. Yes, all services can meet such a demand
 - b. Yes, the combination of the services can meet the demand
 - c. No
 - i. Any particular service that would struggle to meet the demand?
Please select all that apply:
 1. Urgent/Out-of-hours GP Home Visit
 2. Emergency Department
 3. Community Emergency Medicine Team
 4. Ambulance Service
 5. Community Nurse-led Response Team
 6. Hospital-at-Home

7. Mobile Frailty Team
 8. Falls SDEC (Same Day Emergency Care)/2Hour2Day
 9. Other. Please specify [open answer]
- d. Don't know
4. Susan decided to call 999, and they dispatched an ambulance. The crew assessed Mary, and they think she would benefit from a medical review, but the situation does not warrant conveyance to A&E. The ambulance crew is looking for a service that best meets Mary's needs closer to home. Please describe the services and interventions in your area that could manage Mary's current care needs.
 5. Mary had an assessment. Dehydration precipitated delirium (confusion), and she requires close supervision with fluids and regular bloods for the next three to four days. Her daughter can't stay with her. It is implausible that Mary will be able to drink all the required amount of fluids independently without encouragement and supervision. What options does Mary have in your area to recover and make plans for future care? Please select all that apply
 - a. Hospital admission
 - b. Hospital-at-Home
 - c. Virtual ward
 - d. Acute Frailty Unit short stay
 - e. 24-hour carer for a defined period
 - f. Emergency package of care for support in fluid management
 - g. Other. Please specify

Part Three – Flooding

Last summer, some hospitals in London were flooded following a thunderstorm and heavy precipitation, disrupting care and forcing the urgent transfer of patients to other hospitals.

1. Suppose one of the wings of a hospital in your area is badly affected by flooding forcing its closure for an undefined period. All other hospitals in the region remain unaffected. As a result, the Hospital suddenly lost 30% of its bed base. What options do you have in your area to ensure continuity of care for people living with frailty and minimize disruption? Please select all that apply:
 - a. Divert ALL ambulances to other hospitals
 - b. Divert SOME ambulances to other hospitals
 - c. Transfer patients to other Hospitals
 - d. Transfer patients to Hospital-at-Home
 - e. Discharge as many patients as possible to virtual wards
 - f. Transfer all patients not requiring intravenous treatments or oxygen to step-down units
 - g. Transfer all patients not requiring intravenous treatments or oxygen to Hotels
 - h. Other. Please specify

2. Would any of the above-selected options stop being an option if flooding happened once every 3 years?
 - a. No
 - b. Yes
 - i. Which ones?
 - a) Divert ALL ambulances to other hospitals
 - b) Divert SOME ambulances to other hospitals
 - c) Transfer patients to other Hospitals
 - d) Transfer patients to Hospital-at-Home
 - e) Discharge as many patients as possible to virtual wards
 - f) Transfer all patients not requiring intravenous treatments or oxygen to step-down units
 - g) Transfer all patients not requiring intravenous treatments or oxygen to Hotels
 - h) Other. Please specify
 - c. Don't know

3. A Residential Care Home in your area is at high risk of flooding. They receive a notification for immediate evacuation of all 43 residents. What plans do you have in your region to manage a sudden closure of a care home due to flooding?
 - a. Transfer residents to Hospital
 - b. Transfer residents to Rehabilitation Centre
 - c. Transfer residents to a Hotel
 - d. Transfer residents to a local facility (e.g., sports centre) until temporary accommodation can be organized
 - e. Other. Please specify.

4. [Optional] Could you please provide some more details of the specific interventions and services available.

Part Four – Any other Extreme Weather Events

1. Are there any other climate hazards or situations that you have measures for? If yes, please describe the problem and how it would be managed in your area. If no, write N/A.

Part Five – Participant demographics

1. Role:
 - a. Programme Director
 - b. Clinical Director
 - c. Transformation Lead
 - d. Other. Please specify
 - e. I prefer not to respond

2. Region:
 - a. North East
 - b. North West
 - c. Yorkshire & the Humber
 - d. East Midlands
 - e. West Midlands
 - f. East of England
 - g. London
 - h. South East
 - i. South West

3. Integrated Care Board:
 - a. Dropdown menu for 42 ICBs

4. Your catchment area (please tick all that apply):
 - a. Urban
 - b. Rural
 - c. Coastal (a region within 10km from the sea)

5. Is your region prone to flooding events?
 - a. Yes
 - i. Surface water
 - ii. Rivers
 - iii. Coastal/tidal
 - iv. Groundwater
 - b. No

[End]

Thank you for your collaboration.

We may need to contact you for further information on local planning for unplanned care during extreme events. Should you wish to be contacted, please leave your email [here](#).

The HPRU in Environmental Change and Health provides research to support decision-making on the impact of climate change in health and health care. Please contact jennifer.israelsson@ukhsa.gov.uk should you wish to know more about our projects and how can we help.

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