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Themed Paper – Short Communication

Rethinking local resilience for extreme heat events

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ABSTRACT

Objective: This study aims to provide insights into how local resilience structures in England can be leveraged to deliver a whole-of-society approach to managing a national response to extreme heat events during summer months.

Study design: A communication based on the literature review of currently available research on health emergency response and extreme heat events in England.

Methods: This communication draws insights from the authors' research programmes, which examined national-level public health emergency response during the COVID-19 pandemic and literature review of the latest available English research on health and extreme heat events.

Results: Periods of extreme heat are on the rise in England. Local resilience forums (LRFs), due to their multiagency nature, offer a shared situational awareness and understanding of the need in their local communities. Such information is critical to ensure messaging about heat risks and available resources are tailored to reach specific targeted groups within their communities. Scenario planning and adaptation efforts require a more local articulation which LRFs are well placed to manage.

Conclusions: LRFs are well suited as key structures in the English emergency response to extreme heat events. We suggest that English public health and hospital organisations, working with community partners via the LRFs, must develop their thinking about pressures from adverse weather in the summer months.

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Introduction

Although cold weather and the 'winter pressures' it places on the English public healthcare system are well documented, the health risks brought about by extreme heat and the pressure it places on health services are less well understood. In particular, how the resilience of local communities and the health systems that support them can be future-proofed against a rising global temperature, and the risks it brings warrant the immediate attention of emergency planners and researchers in the field of public health emergencies. Four of the five hottest summers since records began have occurred in England since 2003.¹ These heat events are defined as days where the mean temperature is above 20°C. While in the summer of 2022, some places in England experienced temperatures of over 40°C for the first time. During the period of extreme heat between June and August 2022, there were 3271 more deaths than the 5-year average, representing a six percent increase, and one of the highest levels of

deaths ever recorded during a period of extreme heat.¹ In this commentary, we call for a necessary rethink in how the English public healthcare system work alongside local resilience forums (LRFs) to prepare for extreme heat events. Building on the lessons learned from the COVID-19 pandemic^{2,3}, we present how future national preparedness and resilience for extreme heat-related emergencies should be enhanced.

Background

The COVID-19 pandemic is one example of how global connect-edness increases our exposure to public health risks. It also illustrates how public health emergencies are more than just health sector incidents but are challenges for the whole of society, specifically the community level, which necessitates a wider response. There are rising concerns over the strain on health systems caused by increasing severity and incidence of disasters resulting from climate change.^{4,5} Extreme weather events induced by climate change, including heat waves, have become more intense, frequent and costly, impacting infectious disease transmission and undermining peoples' mental health and livelihoods.⁶ Recent modelling shows

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increasing demand on the English National Health Service, rising hospital admissions and increased patient length of stay during summer months are already evidenced but likely to be much higher in the decades to come with increased temperatures.⁷ Projections suggest that by 2050, the mean number of additional beds required during hot summer months will be similar to the current number of beds required during winter. Links between heat, increased mortality and worsening mental health, including suicide, are established among vulnerable populations, including the elderly.⁸ Vulnerability to heat emergencies is compounded by inequity, intersectionality and marginalisation linked to gender, ethnicity and low-income status, as well as strong variation by geographic region.⁶

In England, planning for risks such as extreme heat events is facilitated by a piece of legislation, the Civil Contingencies Act 2004. Civil Contingencies Act outlines the doctrine, structures and processes to manage emergencies when they are declared in the United Kingdom. This national resilience structure includes the design and connections between local and national elements, such as local Strategic Coordinating Groups and the national Cabinet Office Briefings or Situation Centre. Across England, the resilience structures that manage major incidents are local partnerships of emergency, essential, public and civic services, including the police, fire, ambulance, health, highways agency, the Met Office, coal authority, environment agency and the local authority, termed LRFs. For public health emergencies, such partnerships are well placed to coordinate the emergency preparedness, mitigation, response and recovery activities.

What can we learn from the role of LRFs during the COVID-19 pandemic?

LRFs were critical and successful in bringing the health sector, including public, social, primary and acute care, together with other partners for health emergency preparedness during the COVID-19 pandemic.⁹ The multidisciplinary focus of an LRF helps to remedy a narrow ‘hospital-centric’ approach to emergency preparedness.¹⁰ Local strategic decision makers knew their local communities and resources very well, and the community connectedness is a key benefit of the LRF model. As such, LRFs were able to act quickly, effectively and across a broad range of critical activity during the response to the COVID-19 pandemic.¹

Rethinking local resilience for extreme heat events

Given the increasing general demand in the healthcare system, local resilience structures need to draw from community-level intelligence to mitigate health risks due to warm weather. At present, there is a great demand for emergency health care in England during winter resulting from seasonal influenza and other respiratory diseases, which consume hospital resources. While ‘winter pressure’ can dominate media headlines, emergency planners must be prepared for all seasons and the range of adverse weather that can occur. In the summer of 2020, there was greater than the expected number of deaths for people aged >65 years in their own homes, care homes and hospitals.⁸ These deaths resulted from circulatory and respiratory diseases, Alzheimer’s and dementia. Contributing factors resulted from more time spent at home, high indoor temperatures and lack of respite due to high night-time temperatures.

We posit that emergency planners must rethink how the health system integrates with local resilience structures to protect human health during hot weather. English hospitals and public health, working with their community partners through LRFs, must develop their thinking about pressures from adverse weather in the summer months. We propose two possible ways that LRFs can work in tandem with the public healthcare system to build preparedness

and enhance response effectiveness: first, to ensure the health needs of the local community, including vulnerable groups, are well understood and to use that information to tailor messaging and direct individuals towards local resources; and second, to aggregate data across regions to create a shared situational awareness and understanding of need in their communities and to allow cross-jurisdictional information sharing and enhanced coordination.

Addressing the first recommendation, LRFs are adept at understanding and responding to community needs and risks. LRFs can leverage their greater awareness of the health needs of the local community to direct groups and individuals to resources, including, for example, support for older adults, making people aware of cool banks in their area and working with care home providers. While the Met Office, the National Health Service, in conjunction with the Environment Agency, push out alerts and bulletins about the health risks of hot weather via conventional and social media, LRFs can ensure messaging is tailored to reach specific targeted groups within their communities. For example, in the summer of 2022, the Swindon and Wiltshire LRF wrote a blog post containing health and safety executive guidance targeting local employers whose staff work outside in hot temperatures (<https://wiltshireandswindonprepared.org.uk/blog/working-in-hot-temperatures>).

In consideration of our second recommendation, adverse weather events such as heatwaves, flooding and strong wind can emerge concurrently, meaning these events will likely be experienced across several local authority areas and across boundaries within a region. It is important to think about how emergency response to extreme weather may operate in a region containing multiple LRFs where there is no primacy of geographical area. This may result from a geographically spread weather event, such as strong winds and storms, extensive flooding or coastal sea rises, which would impact across a number of areas. With health operating typically at different geographical boundaries to the LRFs, this will bring many challenges to coordinate agencies and political contexts. The nature of large-scale impactful weather events across a large proportion of the local populations, where there are complex connected events in quick succession, also brings the challenge of protracted response and recovery. To help unify the response across multiple regions, LRFs can, for example, work to aggregate data across the jurisdictions to create a shared situational awareness and understanding of need in their communities. How the LRFs and their hospital and public health partners coordinate their emergency management to these events will be complex, as the national resilience structures at present make little provision for regional structures for coordination. In the future, it should be possible for regions in the United Kingdom to use the National Situation Centre, a new centralised emergency response facility established in 2021, to provide this function and feed the situation report back to the resilience structure of each LRF.

In closing, we have highlighted the potential role that English LRFs could contribute in delivering a whole-of-society approach to national resilience for extreme heat events. As key multiagency structures in the English emergency response, the situational awareness these local partnerships bring to the emergency planning of public health care must not go underappreciated so that they can be leveraged in the national efforts, now and into the future, to support resilience against extreme heat events. Finally, the learning from the COVID-19 response, including the enhancements to LRFs via the UK Government Resilience Framework (released in December 2022) and the opportunities created through the establishment of the National Situation Centre, must be incorporated into the community-level response so that opportunities to enhance resilience can be clearly identified and improvements put in place to protect against future emergencies.

Authors statements

Ethical approval

No ethical approval was required for this article as it is a commentary and does not involve any participants.

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Competing interests

There are not any competing interests to declare. The views expressed in this article are those of the authors and not necessarily those of any LRF or their multiagency partners.

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