

From warnings to action: Building a more inclusive and effective approach to heat adaptation

Pre-print

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Executive summary

Extreme heat is an increasingly important public health and climate risk in England. The Heat-Health Warning System provides an essential mechanism for alerting the public and relevant organisations to periods of increased heat-related health risk. However, issuing warnings does not guarantee that people will receive them, recognise their personal risk, understand what to do or be able to take protective action.

Research undertaken by the University of East London identified two important gaps in England's current approach to heat risk communication: the heat information reach gap and the warning-behaviour gap, where 30% of people surveyed reported never having encountered a Heat-Health Warning and among those who had encountered Heat-Health Alerts, more than one-third reported taking no protective action.

A cross-sector roundtable convened by the University of East London, in collaboration with the National Heat Risk Commission and Chartered Institute of Housing, brought together stakeholders from government, public health, local authorities, housing, academia and the Voluntary, Community and Social Enterprise (VCSE) organisations to explore how these gaps can be addressed. The following priorities emerged for national government, mayors, and Mayoral Strategic Authorities (MSAs):

1. **Improve the reach of heat risk communication** by working through trusted community organisations, voluntary and faith organisations and local networks, while using diverse, multilingual and accessible communication channels.
2. **Move from awareness to protective action** by making messages relevant, practical and actionable, strengthening public understanding of heat risk and supporting people to overcome barriers to action.
3. **Move beyond warnings** by strengthening governance, sustained funding, cross-sector collaboration, organisational capacity, housing adaptation and wider measures that reduce heat vulnerability.

1. Why does heat risk communication need to change?

Europe is warming faster than any other continent, at roughly twice the global average rate, making it the fastest-heating continent on Earth (EU, 2026). One of the most immediate and lethal manifestations of this warming is the increasing frequency and intensity of extreme heat (Domeisen et al., 2023). Heatwaves are no longer freak weather anomalies (WHO, 2026).

In England, the urgency of this challenge was demonstrated during the early heat episodes of 2026, when 2,877 heat-associated deaths were recorded during May and June alone (UKHSA, 2026). This figure was already close to the record annual total of 2,985 heat-associated deaths recorded during the extreme summer of 2022, despite August, traditionally the UK's hottest month, not yet having occurred (Khosravi, 2026).

International evidence demonstrates that well-designed heat early warning systems save lives. The World Health Organisation (WHO) recognises heat early warning systems as one of the most effective public health interventions for reducing heat-related mortality, while epidemiological studies have shown measurable reductions in deaths where such systems are effectively implemented (Oberai et al., 2025). However, the European Environment Agency (EEA) emphasises that warnings are only effective if people receive, understand, and act upon the information they receive. Timely alerts alone are insufficient unless they lead to protective behaviour (EEA, 2024).

England's Heat-Health Warning System (HHWS) provides an important mechanism for alerting the public and relevant organisations to periods of increased heat-related health risk (Lass et al., 2011; Casanueva et al., 2019). The University of East London assessed the effectiveness of HHWS and identified two main gaps (Assan et al., 2026; Khosravi et al., 2026):

- **First, there is a communication reach gap:** Around 30% of people surveyed reported never having encountered a Heat-Health Warning or message. Exposure was lower among some groups, including older adults, people on lower incomes, unemployed people and those with lower educational attainment.
- **Second, there is a warning-behaviour gap:** Among those who had encountered Heat-Health Alerts, more than one-third reported taking no protective action. This was associated with low perceptions of personal risk, uncertainty about what action to take and difficulties understanding or responding to warnings. This shows that receiving an alert does not necessarily translate into protective behaviour.

To explore how these gaps can be addressed, the University of East London, in collaboration with the National Heat Risk Commission and Chartered Institute of Housing, convened a cross-sector roundtable involving 23 participants from public bodies, VCSE, academia, advisory bodies and the built environment. The discussion focused on three questions:

- How can we improve the reach of heat risk communication?
- How can we move from awareness to protective action?
- Beyond warnings, what longer-term actions are needed to reduce heat vulnerability?

The discussion highlighted that these are interconnected gaps. Improving reach is necessary, but reach alone is not an adequate measure of effective communication.

2. Priorities for improving England's response to extreme heat

The roundtable identified three interconnected priorities for strengthening England's response to extreme heat.

Priority 1: Reach the people most at risk

Effective heat risk communication depends first on reaching the people who need the information. Participants highlighted three complementary approaches to improve the 30% heat information reach gap

a. Work through trusted intermediaries

Community, voluntary and local organisations can play an important role in translating national heat risk information into messages that are locally relevant and delivered through trusted networks. Participants particularly emphasised the potential of community organisations, voluntary and faith organisations, and local networks to reach populations that may be missed by institution-led communication.

b. Use multiple communication channels

Participants further emphasised the need to diversify communication pathways. National warnings should be disseminated through the channels people actually use, combining broadcast and social media with community networks and other locally relevant routes rather than relying on a single communication channel.

c. Reduce barriers to information access

Language, literacy, disability and digital exclusion can limit access to heat risk information. According to participants, by addressing these barriers through multilingual and accessible formats and a combination of digital and non-digital formats, communication can be made more accessible to a wider range of people.

Priority 2: Move from awareness to protective action

Of those who receive heat health alerts, only 40% reported taking protective action. Therefore, reaching people with heat risk information is not enough to ensure protective action. Participants identified four interrelated strategies for moving from awareness to protective action.

a. Contextualising heat risk communication (Make messages relevant to people's circumstances)

Participants emphasised that people's responses are shaped by their housing, circumstances, experiences and vulnerabilities. Generic messages may therefore fail to generate a sense of personal relevance. Heat risk communication should therefore be contextualised to help people understand how extreme heat may affect them and those they care for.

Mayors, MSAs and local authorities are well placed to help ensure that heat risk communication reflects local circumstances, populations and vulnerabilities.

b. Make protective action possible

Tailoring communication to local contexts was, however, viewed as only part of the solution, as awareness does not automatically lead to behaviour change. Participants noted that people may understand a warning but face practical constraints that prevent them from acting. Communication should therefore provide clear, practical and actionable advice while recognising and addressing the barriers that can limit people's capacity to respond.

c. Proactive communication (Communicate before the heatwave)

Participants recommended moving beyond a model in which communication is activated only when extreme heat occurs. Year-round engagement can build familiarity with heat risks, reinforce protective behaviours and improve preparedness before heat events occur. This approach aligns with the EU (2026) call to build the "institutional habit of planning ahead rather than reacting in a crisis".

d. Persuasive communication (Use appropriate urgency)

Messages should communicate the seriousness of heat risk without undermining credibility. Participants also highlighted that the way messages are framed can influence whether they prompt protective action. They recommended strengthening the persuasive elements of heat risk communication by conveying the seriousness of heat risks with appropriate urgency while remaining clear, credible, and action-oriented.

Priority 3: Move beyond warnings

Participants emphasised that communication alone cannot address heat vulnerability. Reducing heat risk requires longer-term action to address the institutional, social and environmental conditions that shape people's exposure and capacity to adapt. Five priorities emerged:

a. Strengthen governance and leadership

Participants emphasised the need to embed heat resilience within routine policy and decision-making across sectors, supported by clearer institutional leadership, responsibilities and accountability.

b. Provide sustained funding

Long-term funding was identified as a critical enabler. Short-term funding cycles can make it difficult to sustain successful initiatives, plan ahead or build lasting community and organisational capacity.

c. Build organisational capacity

Local authorities, community organisations and other relevant actors need the knowledge, skills and practical tools required to communicate effectively, prepare for heat and support vulnerable communities.

d. Strengthen cross-sector collaboration

Participants further highlighted the need for stronger collaboration across government, public services, housing, academia and the VCSE sector. Addressing heat vulnerability and resilience requires coordinated action across sectors rather than isolated interventions.

e. Adapt buildings and infrastructure

Behavioural adaptation cannot compensate for overheating homes, buildings and neighbourhoods. Investing in building, housing and wider environmental adaptation must therefore complement communication and individual protective behaviours.

3. Policy recommendations

In its recent vision for devolution in England, the government committed to a radical shift in where power and resources lie, stating that mayors will play a fundamental role in aligning national, regional, and local priorities (Cabinet Office, 2026). This new model of government offers an opportunity to build a more responsive and effective approach to heat risk communication, coordinated by mayors and other local leaders, and fully backed by central government. Our three priority recommendations are:

3.1 Strengthen communication reach through community-based approaches

Mayors, Mayoral Strategic Authorities (MSAs), and local authorities should lead the establishment of community-based partnerships of trusted local organisations to extend heat risk communication to populations that may be missed by mainstream channels. These partnerships should be backed with sufficient resources, with central government playing a supportive, facilitating role.

3.2 Design heat risk communication to enable protective action

Heat risk communication strategies should be redesigned to be tailored to people's circumstances in different parts of the country. Risk should be communicated with appropriate urgency, and accompanied by clear, practical, and actionable advice. Mayors and MSAs will be best placed to implement these strategies locally through community-based partnerships, and they must include proactive, year-round forms of engagement that focus on addressing the barriers that limit people's ability to take protective action.

3.3 Move from warnings towards integrated heat resilience

Central government, MSAs, and local authorities should move beyond a primarily warning-based approach to heat risk and embed heat resilience within routine governance, policy, and investment. This requires clear leadership and accountability, sustained funding, strengthened organisational capacity and cross-sector collaboration, alongside long-term investment in housing, buildings and neighbourhoods that reduce exposure and support people's capacity to adapt.

4. Conclusion

England's Heat-Health Warning System provides an important foundation for protecting public health during periods of extreme heat. As heat becomes an increasingly significant and recurring risk, however, warnings alone cannot ensure that people are reached, recognise their risk, understand what action to take or have the capacity to protect themselves.

The roundtable highlighted that the effectiveness of England's response depends on more than the warning itself. Effective protection requires communication that reaches people through trusted and accessible channels, helps them understand the relevance and seriousness of heat risk, and supports them to take appropriate action. However, even communication has limits where people face wider barriers arising from their circumstances, housing, or the environments in which they live and work.

Ultimately, a comprehensive response to extreme heat must combine effective risk communication with building adaptation, planning and wider urban measures, supported by strong governance, sustained funding, cross-sector collaboration and meaningful community participation. Only by addressing both people's ability to respond and the conditions that create heat vulnerability, supported by effective coordination between central government, mayors, MSAs and local authorities, can England move from a primarily reactive approach towards longer-term heat resilience.

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