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## INTRODUCTION

Climate change is driving an increase in the frequency, intensity, and duration of extreme weather events, such as wildfires, floods, and heatwaves. These events are known to have an impact on health systems, including driving hospital admissions and length of stay, over heating facilities, and worsening symptoms for people with existing health conditions. Since the Paris Climate Accords in 2015, awareness has increased of the health risks posed by extreme heat along with interest in adaptations which aim to reduce heat-health-risks for vulnerable populations. However, the extant literature on these adaptations suggest they are insufficient, and call for research to examine whether, how, and what adaptations for extreme heat are effective as public health interventions. The objective of this study is to map the international evidence for extreme heat related adaptation strategies by health systems.

# **REVIEW QUESTIONS**

In this scoping review of reviews, we map the international evidence for extreme heat related adaptation strategies by health systems with particular focus on how vulnerable populations are considered. We seek to answer the following questions:

- 1. What adaptations are health systems worldwide undertaking in the face of extreme heat emergencies caused by climate change?
- 2. How are heat-vulnerable populations considered in these adaptations?
- 3. How is local situational awareness incorporated with adaptation, so that strategies are grounded in local knowledge and experience?

# **SUMMARY OF FINDINGS**

## **3 Major Categories of Adaptations:**

- 1. Early Warning Systems (e.g. Heat Health Alerts)
- 2. Healthcare Emergency Planning (e.g. Service Delivery Planning)
- 3. Green infrastructure/Building Design (e.g. Natural Solutions, Ventilation, Shading)

### **Main Concerns:**

- Adaptations do not adequately consider health equity, expanding definition of who is considered 'Heat-Vulnerable' is necessary. (who to target and how to reach them)
- Adapt local situational awareness so that risk communication plans are grounded in local knowledge and experience. (build trust)
- Better coordination required for system level climate change adaptation. (spread across too many organisations, departments, agencies)

# University of Health system adaptations for extreme heat: an international scoping review of reviews



The first Health System Resilience for Extreme Weather Emergencies Symposium was held at the University of Sheffield in July 2023. This review was planned during the event. The network consists of academic partners from 10 countries including Australia, Canada, Ghana, Nigeria, Qatar, Taiwan, Thailand, Türkiye, USA, and the UK. **STUDY SELECTION** 

A comprehensive search of the published literature was conducted using MEDLINE, Embase, CINAHL, the Cochrane Library and Web of Science. Searches were limited to reviews published since 2015 in the English language. 10% of records were double-screened to ensure consistency. Eight authors assisted with data extraction including full-text screening.

Identification of new studies vi

Records identified from Databases (n = 3,722): MEDLINE (n = 1.829)Embase (n = 412)CINAHL (n = 368)Web of Science (n = 1, 113)Records screened (n = 3,485) Reports sought for retrieval (n = 113)Reports assessed for eligibility (n = 113)New studies included in review (n = 39)

a databases and registers
Duplicate records (n = 237)
Records excluded
(n = 3,372)
Reports not retrieved
(n = NA)
Reports excluded:
Not eligible for inclusion $(n = 74)$



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