

# **Public health interventions to reduce morbidity and mortality outcomes during wildfires in North America: A systematic review**

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**TOPIC/TARGET AUDIENCE:** Disaster epidemiologists; Medical practitioners; Emergency Management Professionals

**ABSTRACT:** Background: Recently, wildfires in the United States have increased due to a warming and drier climate. Health agencies have recommended several public health interventions (PHIs) to reduce the morbidity and mortality associated with exposures to smoke from wildfires. However, it is unclear which are the most effective in decreasing morbidity and mortality associated with wildfire smoke exposure. Objective: To analyze the effectiveness of PHIs in reducing the morbidity and mortality associated with exposure to wildfire smoke in North America. Methods: A systematic search was conducted per PRISMA guidelines. PubMed, Web of Science and Cochrane CEN-TRAL were searched for articles containing known wildfire PHIs, and related health outcomes in North America. No year restrictions on publications were included. Results: Five articles were included in the review. Most studies analyzed the effectiveness of portable air cleaners (PACs). Conclusions: Results from our analysis continue to reflect the difficulties in assessing PHIs and adaptations to wildfires. Overall, PACs were likely to decrease PM2.5 concentration within households and prevent 11-63% of hospital admissions associated with wildfire particulate matter across interventions. Future research is needed to determine if other known PHIs are as effectiveness as PACs in mitigating the effects of wildfire smoke exposure.

## **OBJECTIVE(S):**

1. Analyze public health interventions used in wildfires in North America
2. Describe the impact of each public health interventions during wildfires
3. Identify common public health interventions used in wildfires
4. Compare the impact of public health interventions on direct and indirect health outcomes during wildfires

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