Public Policy Priorities

Protecting Workers and the Public from Thermal Stress

The Need for Action

Thermal stress, which includes both hot and cold, impacts workers across multiple industries that perform work inside or outside, student-athletes, and people attending indoor or outdoor events. When people get too hot or too cold for extended periods of time, it can cause serious problems, including illness, permanent injury, or death.

Each year in the United States approximately 170,000 workers suffer heat-related injuries\(^1\) - enough to fill an average sports stadium to capacity twice. While fewer numbers of workers suffer cold-related illnesses or injuries, cold-related hazards impact more than 20,000 workers each year.\(^2\)

In addition to the incalculable losses associated with permanent injury or death, thermal stress reduces worker productivity, creating significant economic burdens if left unaddressed. Heat hazards in the United States alone result in the loss of “approximately $100 billion per year in lost worker productivity in comparison to productivity levels prior to 1985.”\(^3\) The need for action is clear, significant, and pressing.

The Challenge

Heat and cold are obvious hazards, so why is overexposure still such a problem? In part, because people often overestimate their ability to handle thermal stress and may not realize they are in danger until it’s too late. More importantly, supervisors, teachers, and coaches


may not have sufficient training to recognize the environmental conditions that pose thermal stress risks to workers, students, and athletes for whom they have responsibility. Furthermore, supervisors, teachers, coaches, and coworkers may not have insufficient knowledge or training to prevent, identify, and respond appropriately to a heat or cold-related medical emergency.

Adding to this complex challenge, “Incidents of extreme weather are projected to increase as a result of climate change. Many locations will see a substantial increase in the number of heat waves they experience per year and a likely decrease in episodes of severe cold.”4 As more people are exposed to high heat for longer periods of time, they will be increasingly at risk of heat-related injuries and illnesses, both on and off the job.

**Recommended Solutions**

The following is a list of actions that AIHA members, governments, businesses, nonprofits, and other stakeholders can take to reduce thermal stress-related injuries, illnesses, and death. While it may not be possible to pursue all these actions immediately, progress on any of them represents a step toward protecting more workers and their communities.

- Advocate for and help implement simple, clear, and explicit regulations written in plain language that requires thermal stress to be taken seriously, placing explicit legal responsibility on employers, schools, and other organizations to mitigate thermal hazards.

- Encourage education, awareness, training materials, regulations, and guidance on thermal stress to be provided in written and spoken languages that workers, athletes, and participants can understand, including those with low literacy skills or who are functionally illiterate.5

- Advocate for laws and regulations that require providing workers with both cool potable water and unlimited restroom access. Research shows that people, especially women, may be reluctant to drink enough water when sanitary facilities are inadequate.

- Encourage the provision of rest areas/cooling stations that are easily accessible and well-equipped with appropriate tools and technologies necessary to cool workers down.

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5 Approximately 21% of U.S. adults (43 million) have low English literacy skills or are considered functionally illiterate in English, according to the National Center for Educational Statistics report on adult literacy in the United States, available at [https://nces.ed.gov/pubs2019/2019179/index.asp](https://nces.ed.gov/pubs2019/2019179/index.asp).
• Encourage the provision of guidance regarding cooling station temperature ranges.

• Encourage the publication of well-developed guidance. For instance, cooling station standards should be similar in detail to eyewash stations and fire suppression requirements.

• Raise awareness of thermal stress-related hazards, particularly among vulnerable, under-served, special-needs, and low-income populations.

• Encourage training on how to prevent, identify, and respond to the early signs of thermal stress as well as heat or cold-related medical emergencies.

• Advocate for worker and supervisor training on the proper selection and use of appropriate personal protective equipment and clothing to reduce the risks of heat or cold-related injuries and illnesses.

• Encourage governmental, academic, or corporate investments in research to quantify the level of heat or cold exposure across industries and identify effective, evidence-based interventions to implement to reduce the risks of thermal-related injuries, illnesses, and fatalities.

• Encourage governmental, academic, or corporate investments in the research, development, evaluation, and deployment of sensor technologies and in our ability to turn data into actionable knowledge and functional protection.

  o Sensor technologies should become accessible to and affordable for all populations with heat or cold exposure risks.

  o Technology testing should include appropriate representation of different populations and environments, should be transparent and reproducible, and follow good practice for evaluations.

• Advocate for incorporating consensus standards into government requirements and guidance documents.

• Support the development and availability of tools for calculating thermal exposure to evaluate safe working conditions, such as the OSHA-NIOSH Heat Safety Tool App.6

• Help policymakers, supervisors, workers, occupational and environmental health and safety professionals, and other stakeholders understand the limitations of data gathered

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6 https://www.cdc.gov/niosh/topics/heatstress/heatapp.html
from various sources, such as wearables and weather forecasts to estimate environmental conditions or an individual’s thermal stress levels.

• Encourage the United States Congress to enact legislation requiring the Occupational Safety and Health Administration (OSHA) to issue a nationwide standard to protect indoor and outdoor workers from hazardous heat indoors and outdoors. Similarly, encourage OSHA to issue such a standard.

• Advocate for the enactment of State legislation to protect indoor and outdoor workers from hazardous heat indoors and outdoors.

• Encourage State departments of labor to issue a standard to protect indoor and outdoor workers from hazardous heat indoors and outdoors.

**High-Hazard Industries**
The following is a list of industries where thermal hazards may be particularly high. Thermal hazards may also be present in other industries.

**Indoor Workplaces**
High-heat industries include those where heat generation is an essential function of the job. These industries include:

• Bakeries
• Foundries
• Manufacturing
• Warehouses

**Outdoor Workplaces**
The environmental conditions of outdoor workplaces are less controllable than indoor workplaces, presenting unique thermal hazards that should be considered to protect workers and the public. These industries include:

• Agriculture
• Amusement and Entertainment (e.g., elementary, or secondary school sports venues, indoor or outdoor professional sports stadiums, music festivals, theme parks)
• Construction
• Emergency Response (e.g., firefighters, medical response)
• Factory Workers
• Landscaping and Tree-trimming
• Public Safety
• Public Works (e.g., remediation workers, sanitation workers, utility workers)
• Transportation (e.g., delivery drivers, railway workers)

**Take Action Now**

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**About AIHA**

AIHA is the association for scientists and professionals committed to preserving and ensuring occupational and environmental health and safety in the workplace and community. Founded in 1939, we support our members with our expertise, networks, comprehensive education programs, and other products and services that help them maintain the highest professional and competency standards. More than half of AIHA’s nearly 8,500 members are Certified Industrial Hygienists and many hold other professional designations. AIHA serves as a resource for those employed across the public and private sectors as well as the communities in which they work. For more information, please visit [www.aiha.org](http://www.aiha.org).