

# CLIMATE CHANGE AND HEAT EXPOSURE

The role of occupational health practitioners  
in addressing the risks

An IOMSC working group report →





**THE QUICK READ**

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The 2025 **IOMSC Thought Leaders Summit** in Geneva brought together more than 50 Chief Medical Officers (CMOs) and other occupational health leaders to discuss the priorities and opportunities for occupational health, both today and into the future.

**The Climate and Health Working Group** identified concerns for immediate focus. This document reports progress and outlines next steps.

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## INTRODUCTION

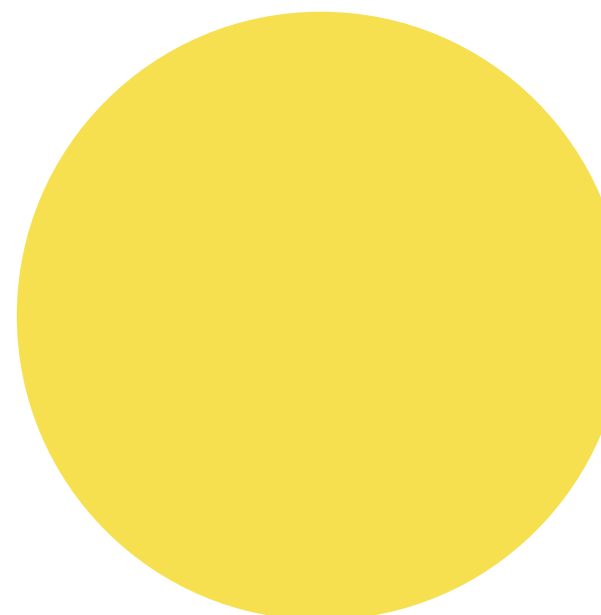
Climate change poses increasing risks to worker health, safety, and productivity through rising temperatures, degraded air quality, extreme weather events, changing patterns of infectious diseases and psychosocial stressors. Extreme heat has wide-ranging impacts on mortality, livelihoods, ecosystems and health systems. Occupational physicians have a vital role to play in identifying risks, protecting vulnerable workers and supporting adaptation and mitigation strategies to safeguard health while promoting safe and productive work environments.

In this paper, the International Occupational Medicine Society Collaborative (IOMSC) Climate and Health Working Group focuses on rising temperatures and the impacts of extreme heat on workers and workplaces. The paper is intended to support Occupational Health practitioners by highlighting this important and growing challenge and by providing practical resources that may assist in implementing risk-informed improvements.

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*“Extreme heat is an urgent and growing threat to human health, exacerbated by the escalating effects of climate change.”*

**– Global Heat Health Information Network**



# **I. OCCUPATIONAL HEAT EXPOSURES — PRIORITIES AND POLICY RESPONSES**

Rising ambient temperatures and heatwaves increase the risk of heat exhaustion, heat stroke, cardiovascular events, injuries and productivity loss. Outdoor workers, workers in non-air-conditioned environments and those performing heavy physical labour are disproportionately affected. In the absence of effective controls, the risk of heat illness and reduced work capacity significantly increases.

Policy options discussed in the literature reflect increasing global attention on the establishment or strengthening of occupational heat exposure standards and the use of heat action plans at enterprise and sector levels. Heat risk surveillance can be integrated into Occupational Health monitoring where feasible and consistent with applicable requirements and regulations.

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## **II. WORKPLACE CASE STUDY: THE PEPSICO INDUSTRIAL ATHLETE PROGRAMME**

This is an illustrative example of an effective organisational approach to managing heat-related risks. The PepsiCo Industrial Athlete Programme (IAP), launched in 2021, applies sports science expertise to support the health, safety and productivity of frontline employees. Led by PepsiCo Life Sciences and the Gatorade Sports Science Institute (GSSI), the programme treats workers as “industrial athletes,” recognizing the physical demands and environmental challenges they face.

The programme focuses on hydration, heat management and nutrition to improve workplace safety and employee wellbeing. Key initiatives include standardized education programmes, global best-practice playbooks and on-site training sessions, which have reached more than 10,000 PepsiCo frontline employees.

Facility-level assessments play a critical role by identifying gaps in hydration access, cooling strategies and heat illness prevention practices. These insights enable targeted recommendations that improve working conditions and reduce risk.

Research is a central pillar of the programme, with studies showing that workers often operate in hot conditions for long hours, experience significant fluid and sodium loss, and frequently begin shifts underhydrated. The programme has expanded to 25 facilities within PepsiCo, including in Australia, New Zealand and Thailand. Overall, the IAP

strengthens employee safety, enhances wellbeing and positions PepsiCo as a leader in the workplace management of heat-related risks.

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### **III. THE ROLE OF OCCUPATIONAL PHYSICIANS**

Occupational Physicians can play a valuable role in informing the development of heat-related policies, standards and workplace strategies. The actions can include:

- Identifying and assessing climate-related occupational risks
- Advising employers and policymakers on preventive and adaptive measures
- Supporting surveillance, early warning systems and workforce training
- Advocating for worker protection in climate and labour policy processes
- Promoting mitigation actions with direct health co-benefits

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### **IV. DEVELOPING A BUSINESS CASE FOR ACTION**

A practical business case for taking action on occupational heat exposures would enable enterprises to evaluate the likely benefits of taking action. The benefits would be expected to include fewer heat-related illnesses and injuries, less productivity loss and disruption, together with safer and healthier working conditions. The process should identify which workers and settings are at greatest risk, and to compare feasible interventions. Importantly, the business case should also have the capacity to evaluate the current and future potential costs of taking no action.

A strong investment case would therefore combine burden estimates, scenario analyses and decision-relevant indicators. It would also have the ability to demonstrate how different interventions, such as enhanced cooling, scheduling changes, additional training, and increased monitoring could reduce heat-related risk, improve workforce safety and productivity, and support business continuity. Return on investment is one important output, but it would also accompany leading indicators such as risk reduction, avoided productivity loss and improved worker protection.

The IOMSC is currently working with Forecast Health on a practical prototype to support and enable this approach and methodology. The tool is intended to model relevant health,

safety and productivity indicators under different intervention scenarios, in order to assist employers to explore where action may result in the greatest value and how to prioritise investment decisions

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## V. TECHNOLOGIES FOR MANAGING WORKER HEAT STRESS

Proven technologies currently exist to identify, anticipate and reduce increasing heat exposure risks for workers. Key technology approaches include:

- **Personal monitoring:** Wearable sensors track core body temperature, heart rate and hydration in real time, triggering early warnings and supporting personalized rest and hydration guidance. These function as an extension of Occupational Health surveillance, where permitted by data privacy regulation and explicit worker consent.
- **Environmental monitoring:** Internet of Things (IoT) sensors measure temperature, humidity and heat stress indices (e.g. WBGT), enabling automated alerts and short-term forecasting to adjust work schedules.
- **Mitigation measures:** Smart ventilation, reflective roofing and cooling systems reduce ambient heat exposure at worksites.
- **Enterprise EHS systems:** Integrated EHS platforms centralize physiological and environmental data, automate alerts, standardize prevention protocols and generate compliance documentation. They also enable trend analysis and scenario testing through digital twins to improve workforce planning.
- **Climate data and emerging tools:** High-resolution climate datasets (heat indices, Wet Bulb Globe Temperature projections, historical and future thermal stress) support risk assessment, strategic planning and productivity analysis. AI, geospatial analytics, digital twins and climate risk scores translate complex data into actionable decision tools. Such data is essential for prioritisation, business case development for capital allocation, capital works planning and sustainability disclosure. Insurance companies are increasingly seeking evidence of this analysis or doing their own.

Combining these technologies and climate data can provide a scalable approach to protecting worker health as heat risks intensify. Where organisations collect frontline data, it should be managed responsibly within appropriate enterprise systems and used to support risk identification and control. Heat-related harm is increasingly well characterized in the scientific and Occupational Health literature; accordingly, a structured approach to risk assessment, implementation and continuous improvement can help strengthen governance, operational resilience and worker protection.

# VI. CORE PRINCIPLES FOR ACTION

Occupational Health responses to rising temperatures in workplaces should be:

- **Preventive** – prioritising exposure reduction and hazard control
- **Equitable** – protecting workers at highest risk (e.g. outdoor and manual workers)
- **Evidence-based** – grounded in established scientific and public health guidance
- **Integrated** – embedded within occupational safety and health and climate policies
- **Adaptive** – responsive to evolving heat risks and local contexts
- **Aligned** – with national and, where relevant, international frameworks

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## THE CALL TO ACTION

In view of the scale and urgency of increasing workplace exposures to extreme heat, we propose the following **four-pillar strategy** that organisations and occ health practitioners may consider, adapting to local context, applicable laws and organisational roles:

### 1. Collaboration and knowledge sharing

- Share case studies of successful heat management implementations.
- Partner with Occupational Health experts, researchers, and worker representatives
- Form industry-specific working groups to share best practices and heat management strategies.

### 2. Research and data gathering

- Develop heat stress monitoring systems and gather worker feedback.
- Conduct workplace heat stress assessments and gather data on the thermal demands and worker health impacts.
- Research industry-specific heat exposure risks and effective heat management strategies.

### 3. Standards and guidelines development

- Support the development of worker training programmes for heat stress recognition and prevention (in collaboration with worker representatives, as appropriate).
- Encourage industry- and site-appropriate indoor heat guidance for worker protection, aligned with applicable laws, standards and local context.
- Promote practical heat stress risk assessment approaches and mitigation measures, tailored to the workplace and workforce.

#### 4. Advocacy and Regulation

- Support the development and effective implementation of evidence-based heat standards and guidance.
- Engage with policymakers, regulators and industry leaders to prioritize worker heat safety.
- Contribute, where relevant, to policy discussions and initiatives aimed at improving heat risk prevention and worker protection.

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## USEFUL RESOURCES:

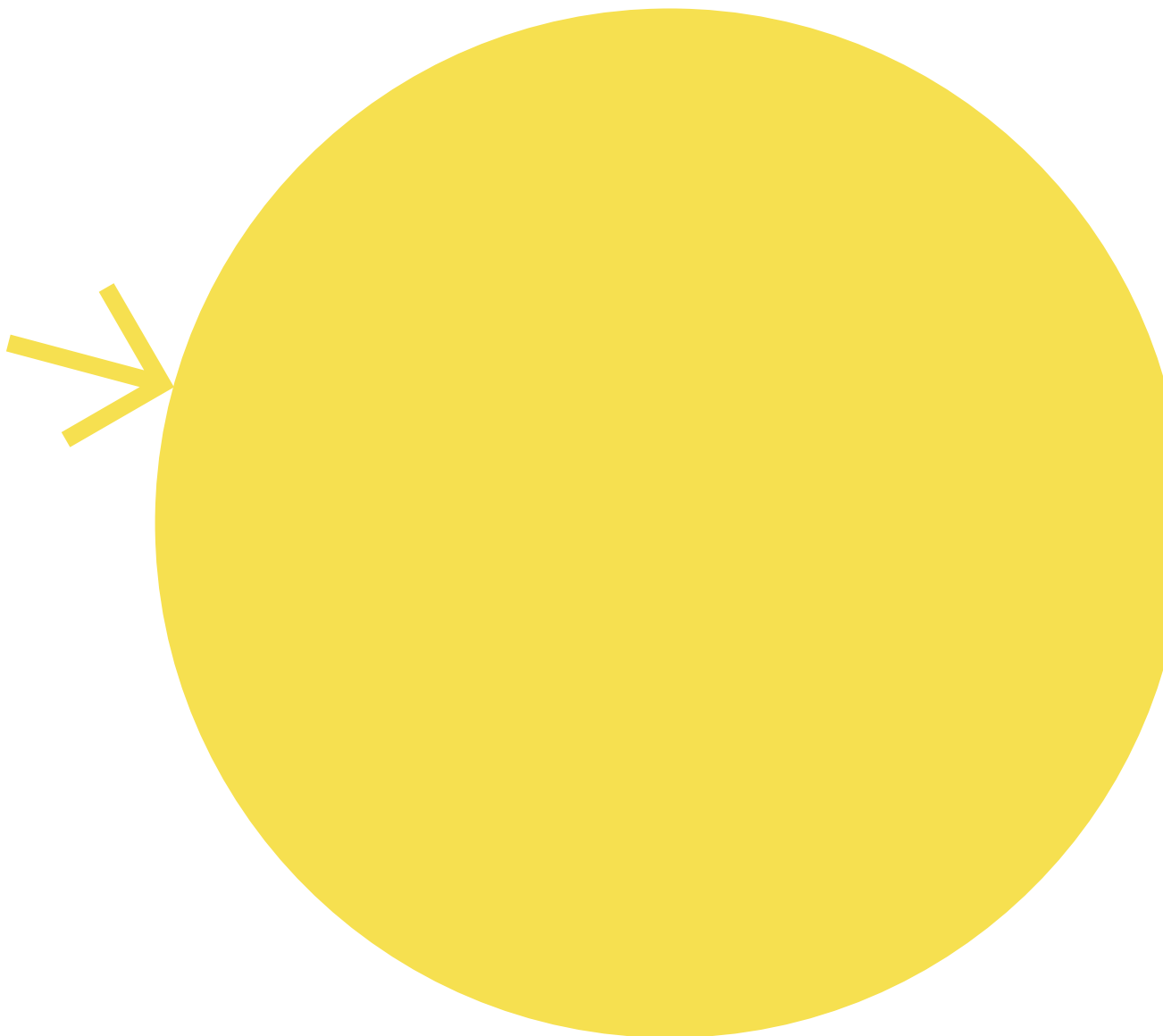
1. **WHO Climate Change and Health Toolkit:** A one-stop set of evidence-based tools and technical documentation for vulnerability assessments, early warning systems, adaptation planning, health system resilience and co-benefits of climate action.
2. **WHO:** Climate change and workplace heat stress: technical report and guidance, August 2025 – <https://www.who.int/publications/i/item/9789240099814>
3. **International Labour Organization (ILO):** Heat at work: Implications for safety and health – A global review of the science, policy and practice – <https://www.ilo.org/publications/heat-work-implications-safety-and-health>
4. **UN Secretary-General:** Call to Action on Extreme Heat – <https://www.un.org/en/climatechange/extreme-heat>
5. **Annual Lancet Countdown Global Reports** [latest 2024/2025]: Peer-reviewed, comprehensive assessments of evidence linking climate change with health outcomes, exposures, adaptation, mitigation co-benefits and policy progress.
6. **Intergovernmental Panel on Climate Change (IPCC):** Assessment Reports. The IPCC is the scientific authority on climate change and provides essential evidence on health impacts, risks, adaptation and mitigation. IPCC AR6 Working Group II – Chapter on Health, Well-being and the Changing Structure of Disease Burden – synthesizes global peer-reviewed evidence of climate impacts on health and adaptation challenges.
7. **Pan American Health Organization (PAHO/WHO):** Climate change and human health: questions & answers – regionally relevant evidence summaries that can support background sections or regional emphasis.
8. **The Global Heat Health Information Network:** <https://heathealth.info/>

**YouTube video resources:**

- <https://www.youtube.com/watch?v=IoIQ3YPfYSO>
- <https://www.youtube.com/watch?v=2bhVBPTC7Ks>
- <https://www.youtube.com/watch?v=n9uQNOXbjiE>

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**Disclaimer:** *This document reflects the professional perspectives of members of the IOMSC Climate and Health Working Group. It is intended to inform discussion and to encourage action. References to organisations and examples are illustrative and do not necessarily represent the policies, positions, commitments or standards of any individual contributor's employer or affiliated institutions.*



# PARTNERS

The **International Occupational Medicine Society Collaborative** (IOMSC) seeks to improve worker health and workplace safety on a global scale. The organisation's assembly brings together occupational medicine leaders from 52 member societies in 46 countries to collaborate on key issues and best practises, impacting more than 1 billion workers worldwide.



The **International Labour Organization** (ILO) plays a crucial role in supporting member states by providing knowledge and practical solutions to address various challenges related to workplace safety. Through its resources, research and guidance, the ILO helps governments, employers and workers stay informed about best practises, emerging risks and effective policies. This collaborative approach not only enhances safety standards but also ensures that all stakeholders are equipped to create safer and healthier work environments.



The **World Health Organization** leverages 8000+ of the world's leading public health experts to coordinate response to health emergencies, promote well being, prevent disease and expand access to health care. Its doctors, epidemiologists, scientists and managers worldwide represent 194 member states. The World Health Assembly is WHO's highest level decision-making forum. Every year, delegates from all Member States convene at the World Health Assembly to set priorities and chart a course for global health progress.



**Enterprise Health** is one of the largest providers of occupational health software in the world, with clients in over 50 countries, nearly a dozen languages and serving several million employees globally. It is the only comprehensive employee health record that combines occupational health and compliance, clinical care and employee engagement and is built on a certified EHR platform – delivering a complete occupational health IT experience on a single, highly-interoperable, cloud-based solution.



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