GLOBAL HEAT HEALTH INFORMATION NETWORK

HEAT HEALTH DIALOGUES | OUTCOME BRIEF

HEAT IN THE WORKPLACE

29 July 2020

Conveners: **Jason Lee**, National University of Singapore, **Elspeth Oppermann**, Ludwig-Maximilians-Universität

During this dialogue session experts explored the state of the science, new research outcomes into often overlooked worker populations, and practical interventions into occupational heat health in Europe, Central America and Vietnam. A facilitated panel discussion and audience engagement followed presentations.

Key Messages

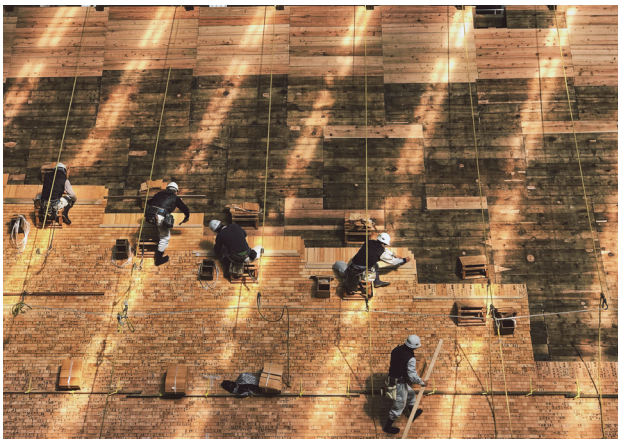
- **The risk of occupational heat stress is increasing** as global temperatures rise due to a changing climate, and vulnerability to heat stress increases due to workforce aging and the pervasiveness of non-communicable diseases.
- **Exertional heat stress can happen even to healthy individuals.** It is caused by exercise or physical work when the body cannot relieve the high amounts of heat generated by metabolism. However, even those who remain at rest can experience heat stress when exposed to hot indoor or outdoor conditions, and/or when wearing insulated protective clothing.
- **Heat strain can be prevented** with knowledge and planning, and empowering workers to use often low-cost technologies and behaviors. Simple steps to protect workers from heat stress can lead to significant economic savings for both workers and employers, by reducing attrition and illness.
- **The impact of heat stress on the workforce has major implications for local economies and livelihoods**, including job loss, income loss, and reduced national gross domestic product (GDP), in addition to threatening lives and well-being.
- **Heat has an inequitable impact on the workforce.** The workers often most affected are low-wage agricultural and construction workers (who may be either local or migrant), as well as the working poor, who all have limited access to social protection, and to whom lost wages have significant livelihood impacts. Additionally, indoor workers, such those working in factories, can disproportionally experience heat stress.
- **Outdoor and indoor workers are exposed to multiple environmental hazards in addition to heat**, including hazardous air quality, noise, solar radiation, and risks of physical injury. The combined effects are neither well understood or comprehensively managed.
- **Responsibility for worker safety falls with governments, employers, and workers themselves.** Worker education can empower individuals to know when conditions are dangerous and what to do to protect themselves and co-workers.
- **Solutions exist** in the form of transformative labour policies (such as those that fundamentally address social institutions to promote inclusivity and equity), increased advocacy and social dialogue, awareness raising, tailored warning systems and targeted heat mitigation plans.

Emerging Priorities and Innovations

The dialogue highlighted issues and innovations to strengthen evidence-based actions for occupational heat health.

SHEDDING LIGHT ON THE MOST AT-RISK POPULATIONS

- **Workers in hot regions and physically demanding jobs are experiencing heat stress and strain that often goes unrecognized,** due to the low adoption of technological advances to reduce their exposure to hot conditions, such as mechanization and improved clothing and ventilation technologies.
- **Labour productivity losses caused by heat stress are concentrated in tropical and subtropical subregions with already precarious labour market conditions**, such as high rates of informal and vulnerable employment and working poverty.
- **Many workers have limited knowledge about the dangers of heat stress and how to protect themselves**, which contributes to their vulnerability.
- **Heat stress can widen existing gender and inequality gaps.** Migrant workers are particularly vulnerable to the impacts of extreme heat, due to the nature of work, such as outdoor construction and agriculture, as well as a lack of protective social measures. Women, as well, often experience a disproportional burden of occupational heat stress in many parts of the world, due to their involvement in subsistence farming, street and market vending, domestic chores, and factory work. Working poor
- **Heat stress is increasingly becoming a driver of migration.** Higher levels of heat stress were associated with higher migration levels in recent years, suggesting households take climate conditions into account in their migration decisions. Hot working conditions contribute to other factors which push individuals to seek better and safer living and working conditions, such as inequality, lack of work opportunities or social ties, civil conflict, and other security issues.



STRENGTHENING THE EVIDENCE BASE ON HOW EXTREME HEAT IMPACTS WORKER HEALTH AND PRODUCTIVITY, FROM GLOBAL TO LOCAL LEVELS

- The International Labour Organization (ILO) **global assessment of heat stress impact on labour productivity** and decent work both now and in the future related to climate change, has helped quantify risks and highlight adaptation needs in specific sectors and countries.
- Economic studies and models indicate cost-savings and minimizing profit loss due to worker attrition and illness.
- **Community-focused knowledge, attitude, practice (KAP)** surveys can help better understand the gaps in awareness among workers. Local studies can document worker exposure levels, including factors such as long working hours, lack of access to air conditioning or cooling, and inappropriate insulation in houses leading to lower recovery rates when still exposed to high indoor nighttime temperatures– which can point to solutions that can be implemented.
- Many **heat indexes** have been developed globally to assess worker heat stress and set “safe conditions.” Wet-Bulb Globe Temperature (WBGT) is the most widely used index offering ability to compare exposure studies. However, because populations living in different parts of the world acclimatize to local environmental conditions differently, the appropriate “safe” thresholds will not only vary globally, but also depending on the time in the heat season, and levels of assumed acclimatization. Understanding spatial, temporal, and individual variability is important when applying heat thresholds globally and sub-nationally, as well as setting worker schedules.
- Hydration plays a key role in reducing the adverse health impacts of extreme heat. A significant evidence-base on daily water requirements for hot work environments based on WBGT in occupational settings should inform action.
- **Factoring in heat acclimatization is also important.** Personal acclimatization may be needed even after a routine absence of 5-20 days from exposure to working conditions. New research shows heat acclimatization in elderly populations (>55 years old) over the course of the hot season can reduce heat strain.
- **Untangle complex interactions and factors that influence occupational safety in hot environments** to better inform the development of guidelines. Research has demonstrated that work rates vary between job type, as well as across countries with, for example, agriculture work in Greece having a different level of work intensity compared to Qatar.

Good Practice: Adaptation strategies to reduce occupational heat stress

The German Red Cross in Vietnam uses a "Forecast-based Financing" approach to automatically release funding for preparedness actions when extreme heat conditions are forecasted, based on a nationally defined heat index trigger.

This innovative approach uses efficient, low-cost, rapid strategies in anticipation of a heatwave, rather than waiting to deploy a post-disaster response. Combined with in-advance KAP surveys and vulnerability mapping to recognize those most at-risk, solutions to reach outdoor workers once the heatwave has been triggered can be quickly and easily put in place to protect workers.

Personalized heat monitoring and early warning systems for workers and employers are also showing promise. HEAT SHIELD utilizes an online platform that can provide forecasts up to 30 days in advance and guidance such as recommendations for amount of water to drink, number of breaks, and work intensity.

Easy to read and language appropriate infographics can help educate workers and employers in specific industries.

Source: HEAT SHIELD

Accelerating action to improve worker protection from extreme heat

Experts point to a range of needs and evidence-based strategies that can be implemented to reduce the risk of extreme heat in the workplace, including:

- Further **field validation of worker safety practices** and implementation of innovative warning systems, as well as the integration of simple tools to mitigate the adverse effects of heat including those aiming to improve on-site and at-home hydration practices of workers. While many guidelines have been tested in laboratory settings, there is a need validate these practices in both indoor and outdoor field settings
- **Provide employers evidence-based recommendations** on how to protect workers from extreme heat. These include supporting on-going occupational heat risk assessments; developing workplace heat mitigation plans including scheduling breaks and working around the hottest periods of the day; routine medical monitoring (initial medical examination upon recruitment followed by annual health checkups to prevent, diagnose, and manage chronic diseases; support employers to train employees on heat stress, and to maintain access to safe drinking water, appropriate clothing, and shade.
- **Educate and empower workers** to better understand workplace heat risks, as well as what can be done to keep cool, such as taking breaks, hydration, and self-pacing.
- Transformational polices for **labour laws and promotion of worker rights**. More comprehensive national policies and systems are needed to address heat stress risks and protect workers, such as adequate infrastructure (i.e. access to shade, ventilation, toilets) and improved early warning systems for excessive heat events.
- **Engagement and dialogue** between government, employers, and workers can help find solutions and identify risk perceptions.
- Focused **advocacy and dialogue** to support reaching consensus on good practice in indoor and outdoor working methods, adapted working hours, dress codes and equipment, shade and rest breaks.
- Continued **climate change adaptation and mitigation efforts** to reduce heat-related hazards, such as urban heat islands.

Network support for occupational heat health

The Global Heat Health Information Network helps bring together a wide range of partners including practitioners, governments, NGO, academia across a multitude of expertise all with the common goal of improving and protecting public health and reducing heat health risk.

The Network supports efforts to reduce the impacts of heat in work settings by focusing on raising awareness, building, synthesis and application of science, and engaging expertise and leadership.

Upcoming activities in 2020-2021 include:

- **www.ghhin.org:** The “Heat in the Workplace” resource section features occupational health-focused case studies, guidance, information and resources on key issues.
- **Technical activities and resource development:** GHHIN is highlighting several new and emerging actions for addressing heat in the workplace, such as the WHO/WMO Technical Report on Occupational Heat Exposure; the Scientific Committee on Thermal Factors established by the International Commission on Occupational Health (ICOH); and project HEAT SHIELD.
- **New training and capacity building opportunities:** GHHIN plans to host a masterclass series on worker health, as well as other themes / topics. Graduate, post-doctoral, and mid-career training / rotations are also available.
- **“Open Forum” Discussion Call:** A new monthly global call-in series will take a deeper dive on specific issues that will inform the GHHIN action agenda, as well as encourage coordination and learning.

Speakers

MEGAN ROWLING (MODERATOR)

Thomson Reuters Foundation

Megan Rowling is a journalist for the Thomson Reuters Foundation, covering the latest developments in humanitarian crises, aid, climate change, governance and women's rights. She specializes in the impacts of climate change on developing countries, and solutions to this growing problem, including disaster risk reduction and climate finance.

JEROME FAUCET

German Red Cross, Vietnam

Jerome Faucet works for the German Red Cross as Head of the Project Office in Vietnam. He has over 12 years of experience in the humanitarian sector, focusing on Disaster Management / DRR programming, Climate Change Adaptation and since 2018 on the impacts of heatwaves on urban vulnerable groups. He has managed projects to strengthen local partners' capacities in Bangladesh, the Philippines, Vanuatu, Vietnam and has provided technical support to the design, implementation, monitoring and reporting of projects in SE Asia, the Pacific and Africa. In the last 7 years he has enjoyed working in the Red Cross Red Crescent Movement (RCRC) with the German and French Red Crosses, and actively collaborating with key stakeholders at Regional, national and local levels including other RCRC partners, UN agencies, Government Bodies, INGOs consortium, Humanitarian steering groups, Universities and community representatives.

ANDREAS FLOURIS

University of Thessaly, Greece

Andreas Flouris, is an Associate Professor at the University of Thessaly, in Greece, and an Adjunct Professor at the University of Ottawa, Canada. He is the Founder and Director of FAME Lab [(F)unctional (A)rchitecture of (M)ammals in their (E)nvironment], a research unit of 16 full-time researchers investigating the health and performance effects of environmental factors, with a particular focus on the impacts of heat. Dr. Flouris is a Coordinator or Partner in a series of large international projects in Europe and North America and he has published widely on the effects of different environmental factors on human health, productivity, and performance. He is currently participating in several Working Groups tasked to develop prevention measures to reduce the impacts of environmental factors for workers, athletes, and the general population, including the World Health Organization, the International Labour Organization, and the Greek Ministry of Labour.

TAHMINA KARIMOVA

International Labour Organization

Tahmina Karimova, is a lawyer specialised in public international law, sustainable development, labour law and human rights law at the International Labour Organization, in Geneva Switzerland. Previously, she served as the ILO National Coordinator for Tajikistan and a Project Coordinator for the ILO International Programme on the Elimination of Child Labour and Forced Labour in Central Asia. From 2014 to 2017, Tahmina worked as a Human Rights Officer in the Office of the High Commissioner for Human Rights.

Learn more

Access the dialogue video recordings, presentations, recommended reading, reporting and more: www.ghhin.org/events/dialogue-heat-in-the-workplace

Global Heat Health Information Network, 2020

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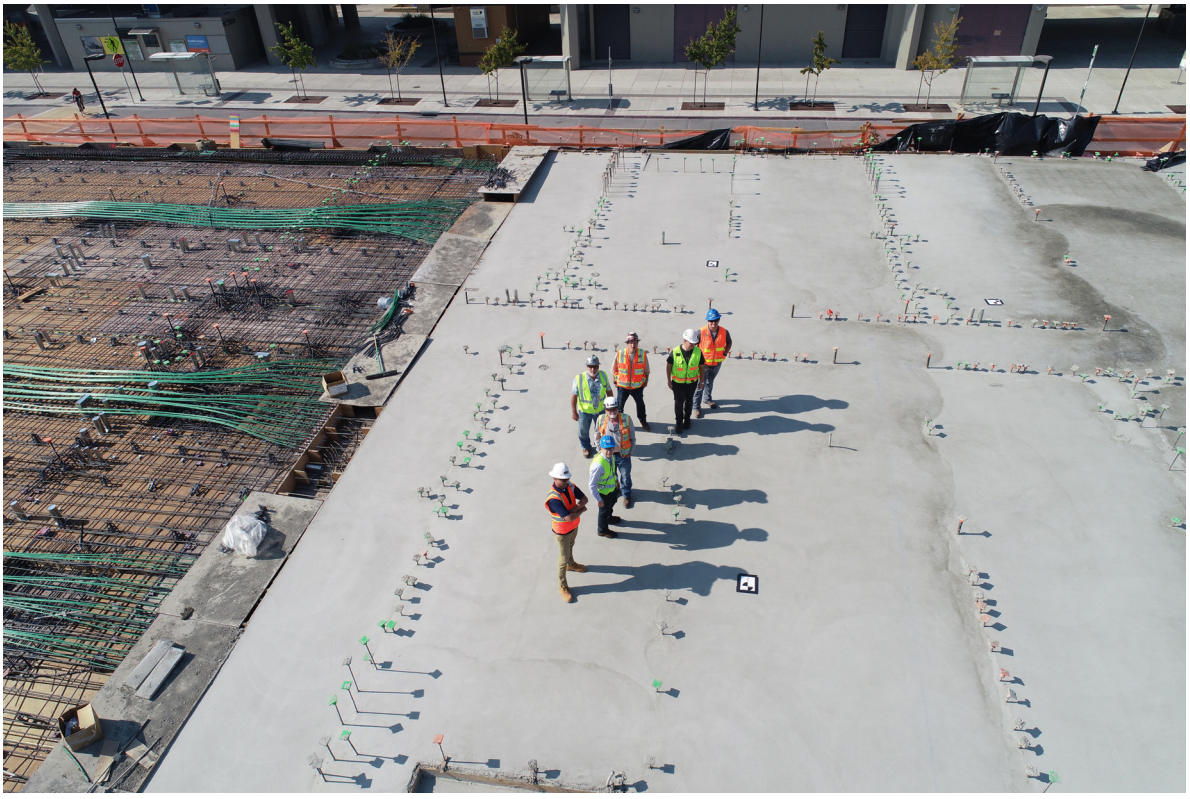

Global Heat Health Information Network, August 2020

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