CPH News and Views

A semi-monthly column on emerging topics related to healthy workplaces

Issue #59: Protecting Workers from Heat: A Total Worker Health® Challenge

Contributed by Cora Roelofs, Sc.D., Assistant Research Professor, Department of Biomedical Engineering, University of Massachusetts Lowell

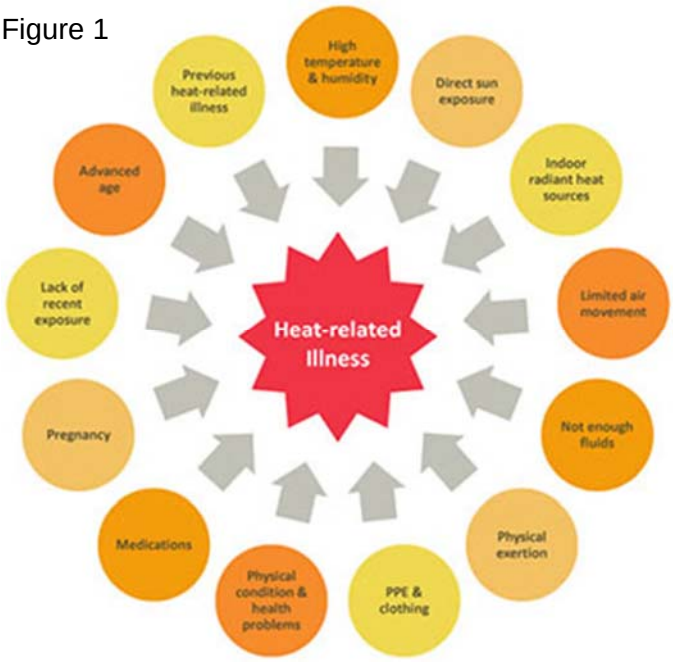
Heat is a well-recognized deadly health hazard with many complex work, personal health, and socioeconomic risk factors. As the planet warms, periods of extreme heat are becoming more frequent and severe and of longer duration.[1] According to the Bureau of Labor Statistics, each year over 2,800 workers sustain serious heat illness in the U.S. and 35 workers die from exposure to high temperatures resulting from weather conditions.[2]

Worker deaths from heat exposure are different from those in the general population.[3] In the general population, heat-related deaths are often older individuals who succumb to very high heat while resting inside. Workers who die in the heat tend to be outside, working hard in variable temperatures, and younger than age 65. These deaths occur across the United States, although most occur in southern and western states. Construction and agriculture workers are at greatest risk, contributing almost 60 percent of the cases.[4] Although indoor workers are often protected from outdoor heat, workers in asbestos removal projects, bakeries, and warehouses can be at significant risk from heat as well.

Risk factors for heat-related illness and deaths

Worker deaths and illnesses due to heat do not occur in a direct dose-response relationship to temperature. Numerous environmental, personal health, and work organizational factors can elevate the risks of high temperature, as summarized in Figure 1 from NIOSH's recent *Criteria Document*.[5] The effects of heat on the human body are exacerbated by humidity, exposure to direct sunlight, and wearing protective clothing. Physical exertion in the heat adds another dimension: exertional heat stress is a function of metabolic heat, environmental heat sources, ability of the body to lose heat, and hydration.

Figure 1



An individual's health risk factors can also increase the risk of a heat-related illness or fatality. These risk factors include age, obesity, and chronic diseases such as diabetes, heart disease and asthma. Heat-related heart failure is commonly diagnosed in those who die in the heat. Common medications such as those used for nasal congestion, depression, and hypertension exacerbate risk of heat illness, as do alcohol and recreational drugs. There are several social and economic vulnerabilities that increase the risks of working in the heat such as being a new or temporary worker, working alone, having limited job mobility, and working for an employer who does not have a heat-illness prevention plan.[6]

Strategies to prevent work-related heat illness and deaths

Heat illness prevention plans include exposure and symptom monitoring; provision of shade, water and rest periods; training programs; and emergency response. These actions can prevent most heat-related deaths and illnesses. During periods of high heat, public health agencies warn the public to seek cooler spaces. However, during work time, a worker cannot do so unless the employer makes it possible. Not working in the heat may mean not getting paid.

Although heat is a recognized hazard under the 1970 Occupational Safety and Health Act's "General Duty clause," there is no national standard that requires employers to monitor work conditions for excessive heat, or to provide the water, rest and removal from heat that are necessary for adequate protection. California has had a comprehensive heat illness prevention standard for outdoor workers since 2005 and is developing a standard for indoor workers. Many other states are now considering heat-illness protection standards and Public Citizen has petitioned OSHA for a national standard.

Summary and Action Steps

While heat has long been recognized as a serious occupational health hazard, climate change and socioeconomic vulnerabilities make exposure to high temperatures more common and more risky. Illnesses and fatalities due to working in the heat are preventable. NIOSH and OSHA have produced prevention guidance for employers, including a Heat Tool application for mobile phones.[7] However, state and federal action is needed to require employers to protect workers from heat. Prevention strategies include heat monitoring; screening workers for personal health risk factors, such as use of contraindicated medications and chronic diseases; and provision of water, rest and shade. Wellness programs that encourage heat awareness, weight loss, and substance abuse treatment can also help reduce risk factors for heat illness.

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Cora Roelofs is an occupational safety and health researcher with an interest in the intersection of climate change and Total Worker Health issues.

CPH-NEW
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