Preventing heat-related illness: Identifying workers at risk of heat stress due to hotter days in the context of climate change

As days with recorded temperatures above 30°C become increasingly frequent in BC, the risk of heat-related illness increases, with workers who primarily work outdoors more likely to be affected.[1] For example, data show an increase in WorkSafeBC claims for heat-related illness rising from an average of 40 claims in 2018 to 81 claims in 2022, with a peak in 2021 of 112 claims, corresponding to an extreme heat event that year.[2] Heat generation or exposure may be caused by factors other than hotter ambient temperatures. These include high humidity, heavy physical exertion without rest, and wearing heavy protective clothing. This article focuses on heat stress occurring on hotter days, which are likely to occur more often due to climate change.

This article is the opinion of WorkSafeBC and has not been peer reviewed by the BCMJ *Editorial Board.*

Risk factors for heat stress

It is important to take an occupational history to determine your patient's work-related risk of heat stress. Risk factors for heat stress may be grouped into (1) environmental factors (e.g., temperature, air flow), (2) individual factors (e.g., acclimatization; certain chronic diseases; medications including antipsychotics, antidepressants, antihistamines, and diuretics; tight-fitting or insulating clothing), and (3) work-related factors (e.g., exertion, nature of work). Workers at a higher risk of heat exposure include those who work during hot days indoors without air conditioning (such as restaurant kitchens or bakeries), those who are exposed to hot days working outdoors (such as construction, agriculture, and motion picture location shooting), and those who work year-round in hot conditions regardless of outdoor environmental temperatures (such as those working in boiler rooms or smelters or firefighting). Workers aged 45 to 54 and those under the age of 34 have been shown to have a higher likelihood of making a heat-related illness claim.[3] Temporary foreign workers are especially vulnerable to heat exposure in the workforce due to a large portion of the workforce performing work outdoors.[2]

Preventing heat-related illness in the workplace

In addition to taking an occupational history, providers can help educate workers to prevent heat-related illness. Workers with chronic disease or on certain types of medications (such as those listed above) should work in collaboration with their provider to adjust self-management while in hot environments and discuss this with their employer so a personal heat safety plan can be put in place. It is also recommended that workers, especially those with medical risk factors, not work alone during hot conditions. Working with other people can allow for mutual monitoring for signs of heat stress.

At the onset of hot weather, especially during the first heat wave of the season,

BOX. Four common heat-related syndromes and corresponding measures to take.

Heat rash

Signs and symptoms: New or worsening rash in response to heat.

Measures: Move to a cooling environment. Make sure to change clothing often and wear loose-fitting clothing.

Heat cramps

Signs and symptoms: Muscle cramps, persistent sweating.

Measures: Immediately move to a cooling environment and cool with fanning or water. The worker should rehydrate with water and electrolytes. Continuing to work despite heat cramps may lead to heat exhaustion.

Heat exhaustion

Signs and symptoms: Headache; nausea; weakness; fatigue; sweaty, cool, and pale skin; increased heart rate and breathing rate.

Measures: Immediately move to a cooling environment, sponge with cool water, remove tight-fitting clothing, and provide oral fluids if conscious. Urgent medical attention is warranted. If not treated, the worker may develop heat stroke.

Heat stroke

Signs and symptoms: Dry, hot, and red skin; no sweating; altered level of consciousness; irregular pulse and increased breathing; cardiac arrest; body temperature above 41 °C.

Measures: Move to the coolest place possible and apply cold water. Call emergency health services. Heat stroke is a medical emergency.

risk of heat-related illness is the highest. During these periods, workers should be instructed to take more breaks and implement precautions to a greater degree than normal as they slowly acclimatize to hotter weather. Some measures to prevent heat stress include staying hydrated, taking frequent breaks in a cooler environment, wearing loose-fitting and light-colored clothing made of cotton or silk, and learning to recognize and act on early signs and symptoms of heat stress.

Providers may also inform workers that their employers have a responsibility to protect them from heat exposure. Employers should be training workers on signs and symptoms of heat stress; providing cool potable water; regularly monitoring thermal conditions; allowing frequent breaks; adjusting work scheduling, workload, or duties to reduce the risk of heat stress to workers; and removing workers from the hot environment if they show signs or report symptoms of heat stress (see more examples at www.worksafebc.com/en/health-safety/hazards-exposures/heat-stress). If you're concerned that a worker is subjected to unsafe work, you can inform them that they have a right to refuse unsafe work and may contact the Prevention Information Line at WorkSafeBC, either online at https://prevruw.online.worksafebc.com or by phone at 604 276-3100 (Lower Mainland) or 1 888 621-7233 (toll-free).

Heat-related illness early recognition and action

Providers should educate patients on the stages of heat-related illness so they can recognize signs and symptoms early and take action to prevent progression. See the **Box** for four common heat-related syndromes and the corresponding measures to take. ■

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Suggested reading

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