

Heat and Cold Safety

This refresher module is an awareness-level tool designed to train workers to reduce their risk of heat and cold stress and treat heat- and cold-related illness if needed.

Time Requirement: 90 minutes

Number of Facilitators: 1 or more, consistent with ratio shown in Minimum Criteria

Materials

- Heat and Cold Safety PowerPoint
- Participant Guide – A printed copy of the PowerPoint will serve as the Participant Guide. Print and make copies of the PowerPoint (3-slide Handout option) so participants can take notes and have all content to refer to in the future.
- Technology – computer(s), projector, screen, cables, internet (note the PowerPoint includes a video which may require the internet)
- Whiteboard or equivalent; markers
- Room with tables for small group activities

Objectives

When completed, participants will better be able to:

- Recognize risk factors for heat and cold stress
- Describe types of heat and cold illness, symptoms, and first aid
- Identify worker protection standards
- Identify methods to reduce risk of heat and cold stress

Facilitator Preparation

This Facilitator Guide provides guidance for presenting the content. It includes information such as time requirements, suggested facilitator preparation, minimum content requirements, issues which may arise, and reference materials.

In addition to this guide, a PowerPoint is provided. The PowerPoint can be printed as a Participant Guide. Every facilitator should be familiar with the material in the PowerPoint and this Facilitator Guide.

The facilitator should also:

- Ensure operation of audiovisual equipment prior to the session
- Ensure you can show videos
- Test web links prior to the session
- Print and make copies of the PowerPoint (3-slide Handout option) so participants can take notes and have all content to refer to in the future. This will serve as their Participant Guide.

Resources

The resources listed below may be useful in preparation and during the program.

OSHA – Heat - <https://www.osha.gov/heat-exposure>

- Heat Illness Prevention Campaign - <https://www.osha.gov/heat>
- Technical Manual - <https://www.osha.gov/otm/section-3-health-hazards/chapter-4>
- Heat Stress Risk Factors - <https://www.cdc.gov/niosh/mining/UserFiles/works/pdfs/2017-125.pdf>

- Winter Weather - <https://www.osha.gov/winter-weather/cold-stress>

NIOSH – Heat Stress <https://www.cdc.gov/niosh/topics/heatstress/default.html>

- Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments: <https://www.cdc.gov/niosh/docs/2016-106/>
- Cold Stress - <https://www.cdc.gov/niosh/topics/coldstress/default.html>
- Cold Stress Fast Facts - <https://www.cdc.gov/niosh/docs/2010-115/pdfs/2010-115.pdf>

Minimum Content Requirements

- Risk factors for heat and cold stress
- Types of heat/cold illness, symptoms, and first aid
- Worker protection standards and guidelines
- Risk reduction for heat and cold stress

Questions You May Be Asked

1. Am I more at risk when working in the heat/cold because of my heart condition?

Health conditions such as diabetes or heart disease are a risk factor for heat stress. Encourage participants to ask their doctors how working in the heat/cold will impact them personally, including their medications.

2. What are the first signs of heat stroke or heat exhaustion?

Heat cramps can be the first sign of impending heat stroke or heat exhaustion. Emphasize this is why it is important to treat the first signs of illness, before they increase in severity.

Presentation of the Session

This session can be presented as follows:

Use the Heat and Cold Safety PowerPoint and notes below.

Heat Safety (Modules 1-5)

A link to the OSHA video ‘Remembering Tim – A life lost to heat illness at work’ is provided in the PowerPoint. It is 8 minutes long but you could choose to show only a portion of it, the first 4 minutes for example. The wet bulb globe temperature video is only about a minute long.

For NIOSH REL and RAL values and additional information on PPE to protect against heat, see 6.3 Personal Protective Clothing and Auxiliary Body Cooling in the NIOSH Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments. <https://www.cdc.gov/niosh/docs/2016-106/>

Exercise - Heat Safety (Module 6)

Time requirement: 20 minutes

Materials: The content for this Exercise can be found in the PowerPoint.

Objective: Discuss scenarios related to heat stress.

Break into small groups and discuss the 4 scenarios, with one participant in each group taking notes. If participants have scenarios from their own workplace they would like to discuss, these can be added or substituted for existing scenarios.

Facilitate a report-back and discussion (see notes below) with the whole class.

Scenario 1: Risk Factors – Physical exertion, clothing and PPE, advanced age (which might also mean health problems and poorer physical condition), radiant heat sources, humidity, possibly limited air movement since the room is small.

Engineering Controls – increased ventilation such as fans, air conditioning, reduce steam leaks, exhaust ventilation, consider PPE that protects against heat exposure

Work Practices – rotate other workers into job, reduce physical demands, train workers regarding heat stress, increase physical fitness, provide adequate water, plan frequent breaks in cooler area.

Scenario 2: The worker may have heat exhaustion. Take the worker to a cooler area. Remove outer layers of clothing. Use fans if available. Use ice or cold towels on worker’s body. If possible, immerse worker in cold water.

Scenario 3: Implement an acclimatization plan, which eases new employees into work.

Scenario 4:

Engineering Controls – Increase ventilation in work area, air condition work area, reduce radiant heat, use mechanical equipment to reduce manual work

Work Practices – Have frequent rest breaks, wear light-weight fast-drying clothing, reduce physical demands, increase number of workers, provide adequate water, increase physical fitness

Cold Safety (Modules 1-5)

Additional information regarding Winter Hazards can be found:

Winter Driving: <https://www.osha.gov/sites/default/files/publications/SafeDriving.pdf>

Snow removal from roofs:

<https://www.osha.gov/sites/default/files/publications/OSHA3966.pdf>

<https://www.osha.gov/sites/default/files/publications/OSHA-3513roof-snow-hazard.pdf>

Exercise - Cold Safety (Module 6)

Time requirement: 20 minutes

Materials: The content for this module can be found in the PowerPoint.

Objective: Discuss scenarios related to cold stress

Break into small groups and discuss the 5 scenarios, with one participant in each group taking notes. If participants have scenarios from their own workplace they would like to discuss, these can be added or substituted for existing scenarios.

Facilitate a report-back and discussion (see notes below) with the whole class.

Scenario 1:

Risk Factors - Cold/wet, exhaustion, increased likelihood of poorer health/conditioning due to age.

Engineering Controls – Perhaps provide shielding from wind or a shelter?

Work Practices - Focus outdoor time during warmest part of day, add a buddy or extra workers to rotate outdoor tasks, have breaks in warm areas and chance to change clothes, drink warm liquids, maintain communication/monitoring with outdoor employees. Wear correct clothing, gloves, boots, hat, mask, goggles.

Scenario 2:

Work Practices – Clear work surfaces of snow/ice, use deicer, take short steps and walk slowly. Avoid working at heights during bad weather if possible.

Clothing and equipment – Wear insulated and water resistant boots with good rubber treads. Consider a personal fall arrest system. Use correct equipment for the job (ladders, aerial lift, etc).

Scenario 3: Yes, thermal protection is needed even when wearing Level B. Wear correct clothing, gloves, boots, hat, mask, goggles. Focus outdoor time during warmest part of day, add a buddy or extra workers to rotate if possible, have breaks in warm areas, drink warm liquids, maintain communication/monitoring with other employees.

Scenario 4: Your buddy might have hypothermia. You should get indoors immediately and seek professional medical attention. Provide warm, sugary fluid but no caffeine.

Scenario 5: You might have frostbite. You should get indoors immediately and seek professional medical attention. Avoid rubbing the area. Instead immerse in 100 °F water (not hotter) for 20-45 minutes. Wrap in soft cloth. Avoid salves or creams.

Summary/Closing

- Review the objectives
- Answer any remaining questions
- Forward suggestions to improve this refresher module to your Program Director
- Forward any impact stories or 'takeaways' to your Program Director