Breakout Session
Heat Stress and Fatigue

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Heat Stress and Fatigue - Questions to Consider (1)

• What H&S training materials used by awardees already address climate change related hazards, risks, and protection measures?

• Have HDPTP awardees modified existing H&S curriculum to specifically prepare workers for conditions that may result from an extreme weather disaster?

• Have awardees in other program areas modified curriculum to prepare workers for additional hazards that will result from climate change (temperature and humidity) helping workers understand these conditions could be for longer periods of the year?

• What are some of the climate change vulnerabilities that you have seen so far to affect workers?
Heat Stress and Fatigue - Questions to Consider (2)

- What are some steps that you have taken to ensure sustainability and resilience in your training?

- How can the training you provide help build community resilience and sustainability?

- What are some of the gaps you think exist in training, curriculum development, and/or intervention to mitigate climate change vulnerabilities?

- Do you have existing training and resources that addresses some of the climate change vulnerabilities/ gaps?
Heat Stress

• Background
• Occupational Statistics
• Standards and/or Guidance
• Thresholds and Work Rest Regiment
• Prevention/Conditions of Change
• Climate Change and Heat Stress
• Training and Resources Available
# Heat Illness Conditions, Symptoms and First Aid

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<th>Condition</th>
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| Heat stroke     | - Confusion  
                    - Fainting  
                    - Seizures  
                    - Excessive sweating or red, hot, dry skin  
                    - Very high body temperature                                                                  | - Call 911                                                                                                     |
|                 |                                                                          | While waiting for help:                                                             |                                                                                                               |
|                 |                                                                          | - Place worker in shady, cool area                                                    |                                                                                                               |
|                 |                                                                          | - Loosen clothing, remove outer clothing                                               |                                                                                                               |
|                 |                                                                          | - Fan air on worker; cold packs in armpits                                               |                                                                                                               |
|                 |                                                                          | - Wet worker with cool water; apply ice packs, cool compresses, or ice if available    |                                                                                                               |
|                 |                                                                          | - Provide fluids (preferably water) as soon as possible                                   |                                                                                                               |
|                 |                                                                          | - Stay with worker until help arrives                                                 |                                                                                                               |
| Heat exhaustion | - Cool, moist skin  
                    - Heavy sweating  
                    - Headache  
                    - Nausea or vomiting  
                    - Dizziness  
                    - Light headedness  
                    - Weakness  
                    - Thirst  
                    - Irritability  
                    - Fast heart beat | - Have worker sit or lie down in a cool, shady area                                      |                                                                                                               |
|                 |                                                                          | - Give worker plenty of water or other cool beverages to drink                         |                                                                                                               |
|                 |                                                                          | - Cool worker with cold compresses/ice packs                                             |                                                                                                               |
|                 |                                                                          | - Take to clinic or emergency room for medical evaluation or treatment if signs or symptoms worsen or do not improve within 60 minutes. |                                                                                                               |
|                 |                                                                          | - Do not return to work that day                                                       |                                                                                                               |
| Heat cramps     | - Muscle spasms  
                    - Pain  
                    - Usually in abdomen, arms, or legs                                                   | - Have worker rest in shady, cool area                                                  |                                                                                                               |
|                 |                                                                          | - Worker should drink water or other cool beverages                                      |                                                                                                               |
|                 |                                                                          | - Wait a few hours before allowing worker to return to strenuous work                   |                                                                                                               |
|                 |                                                                          | - Have worker seek medical attention if cramps don't go away                             |                                                                                                               |
| Heat rash       | - Clusters of red bumps on skin                                          | - Try to work in a cooler, less humid environment when possible                         |                                                                                                               |
|                 | - Often appears on neck, upper chest, folds of skin                       | - Keep the affected area dry                                                            |                                                                                                               |

* Remember, if you are not a medical professional, use this information as a guide only to help workers in need.

Heat Illness/Stress

Background

**Occupational Factors that May Contribute to Heat Illness**

- High temperature and humidity
- Low fluid consumption
- Direct sun exposure (with no shade) or extreme heat
- Limited air movement (no breeze or wind)
- Physical exertion
- Use of bulky protective clothing and equipment


https://www.osha.gov/SLTC/heatillness/map.html
Regulations, Standards and Guidance

- OSHA General Duty Cause
- OSHA Technical Manual (OTM) TED 01-00-015 [TED 1-0.15A],
- Cal OSHA and MN DOL
- ACGIH, ASPR for Disasters/Extreme Environments
- NIOSH
ASPR Thresholds/Heat Stress Management

ACGIH 2008 Heat Stress/Strain TLV Decision Flow Chart

Re: Mizula and Lippy: Volpentest
HAMMER Heat Stress 4 hour Training
Prevention Made Simple: Program Elements

- Heat Illness Prevention Program key elements include:
  - A Person Designated to Oversee the Heat Illness Prevention Program
  - Hazard Identification
  - Water. Rest. Shade Message
  - Acclimatization
  - Modified Work Schedules
  - Training
  - Monitoring for Signs and Symptoms
  - Emergency Planning and Response
Climate Change and Worker Health

- Number of heat waves has almost tripled the long-term average - 3rd Nat‘l Climate Assessment Report (2011 & 2013)

- CDC Study indicated that in 20 cases of heat illness or death over 2 years, 9 deaths in 1st 3 days and several on 1st day - inexperienced workers have higher incidents of heat illness and death

- Outdoor workers and those in high ambient air indoor location such as warehouses have increased risk of heat illness

- Full acclimatization is critical and may take up to 14 days (Arbury 2014)

- New workers should be slowly exposed to hot environments

- PPE use and other Engineering Controls needed.