



Best Practices for Heat Illness Prevention

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Today's Speaker



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Joe Souza has more than 26 years of experience in occupational safety and health in private and public entity settings. He has extensive education in Occupational Safety and Health and is the District Manager for the entire Western US; has earned his degree in Occupational Health and Safety Technician; OSHA Outreach Trainer, has multiple certifications related to safety and is a subject matter expert in over 40 safety related topics.

National Emphasis Program - Heat Illness Prevention

There is a proposal in the “Pre Rule” phase to create a federal standard regarding “Heat Illness Prevention.” Until the Federal Standard is adopted the General Duty Clause can be used for heat related citations.

This standard could include the following:

- A written program/policy outlining the procedures which become effective when the heat index reaches a certain temperature
- Training for all employees on recognizing the hazards of the heat, your facilities policies on heat illness prevention, symptoms of heat illnesses, and how to prevent heat illnesses (Congress has asked for this training to be in person)
- Modification of your facility’s hazard assessment to include any hazard associated with heat illnesses and how the facility plans to reduce or mitigate the hazard.
- The following states have already adopted heat illness prevention standards according to their state plans:
 - California
 - Oregon
 - Minnesota
 - Washington
- Other states (Colorado, Michigan, and Maryland) currently have heat illness prevention standards in proposal

National Emphasis Program - Heat Illness Prevention

Pre Rule - “Heat Illness Prevention Standard” Until the Federal Standard is adopted the General Duty Clause can be used for heat related citations.

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Where could there be heat hazards?

- Outdoor
 - Anyone who must work on the lot
 - Groundskeepers
- Indoor
 - Non-air-conditioned fixed ops departments
 - Paint booths/mixing rooms (especially with paint protective coveralls)
 - Oil tank/Boiler/Compressor rooms
 - Vehicles which have been sitting in the hot sun



Heat Illness Prevention States and Thresholds

- **Adopted Heat Illness Prevention Standards**

- California
 - Outdoor: 80 degrees F
 - Indoor: 82 degrees F/87 degrees F
- Colorado
 - Agricultural Employees: 95 degrees F
- Minnesota
 - TWA of WBGT
- Oregon
 - Outdoor: Heat index 80 degrees F
- Washington
 - Outdoor: 80 degrees F

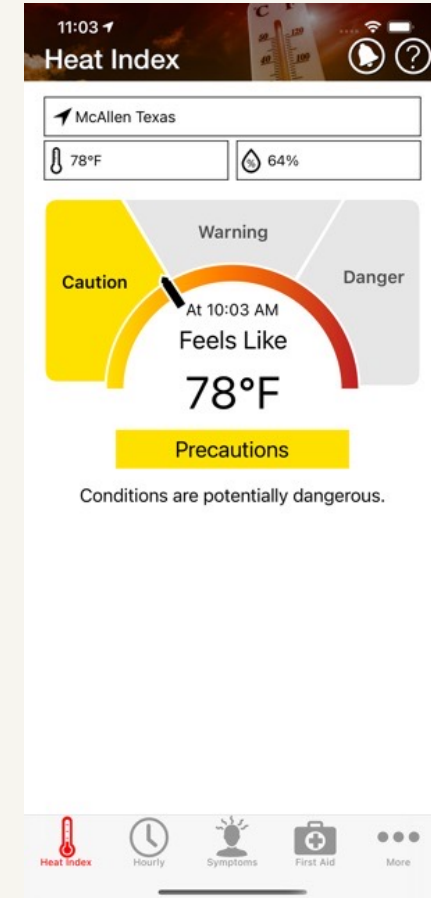
- **Proposed Heat Illness Prevention Standards**

- Maryland:
 - Outdoor Heat Index 88 degrees F
- Massachusetts
 - Outdoor 80 degrees F
- Nevada
 - Outdoor 90 degrees F

Federal Heat Illness Prevention National Emphasis Program

OSHA Inspection Procedures for Emphasis Program Investigations

- During heat related inspection CSHOs shall:
 - Review OSHA logs for heat related illnesses
 - Review records of heat related ER visits
 - Interview workers for heat related illness symptoms
 - Determine if the employer has a heat illness & injury program
 - Document conditions relative to heat hazards
 - Relative humidity
 - Wind speed
 - WBGT readings
 - Identify activities relative to heat hazards
 - Working in direct sunlight
 - Hot vehicles
 - Heavy clothing
 - Duration of exposures



Officers will use and reference the NIOSH Heat Safety Tool Application for conditions

Heat Illness Prevention Program

- CSHOs will assess the program for the following:
 - Is there a written program?
 - How are conditions and work activities monitored?
 - Is there unlimited access to cool water?
 - Were additional hydration breaks required on program days?
 - Are there scheduled rest breaks with access to shade?
 - Is there an acclimatization schedule?
 - Is there a “buddy” system?
 - Were administrative controls in place?
 - Starting earlier in the day
 - Did the employer provide training?



When are Citations issued?

- **A citation can be issued under the following conditions**
 - The hazard is clearly and specifically set forth in the citation
 - The employer failed to keep the workplace free of a hazard
 - The hazard was recognized
 - The hazard was likely to cause death or serious physical harm
 - There was a feasible and useful method to correct the hazard
 - Evaluation if heat related issues identified other standards which have not been met
 - Recordkeeping standards
 - Sanitation standards
 - Training and education standards



California – Heat Illness Prevention

- Outdoor Temperature > 80 F
 - Provision of fresh, cool, pure, free of charge water
 - Access to shade
 - Emergency response procedures
 - Effective communication for employees to contact supervisor and or EMS
 - Responding to signs of heat illness
 - Contacting EMS
 - Ensuring clear directions for the worksite
 - Acclimatization
 - Close observation for first 14 days of assignment
 - Training
 - Risk factors
 - Importance of hydration
 - Acclimatization
 - Signs symptoms of heat illnesses
 - Etc..
 - Supervisor Training
 - Written Heat Illness Prevention Plan
 - Contains all the above



California – Heat Illness Prevention

High Heat Procedures – Temperature > 95

- Affected Industries
 - Agriculture
 - Construction
 - Landscaping
 - Oil and Gas Extraction
 - Transportation/Delivery of Agricultural Products
- Requires additional
 - Effective Communication
 - Employee Observation
 - Mandatory “buddy system”
 - Supervisory responsibility of 20 employees or less
 - Designated employee as an emergency response communicator
 - Water reminders
 - Preshift meetings



California – Heat Illness Prevention

Proposed Indoor Heat Standard

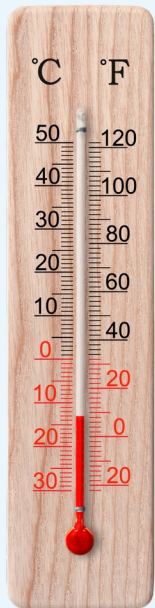
- The following apply when the indoor temp is ≥ 82 F when employees are present:
 - Provision of water
 - Access to cool down areas
 - Emergency response procedures
 - Close observation during acclimatization
 - Training
 - Written program
- The employer will establish assessment and control measures when:
 - Temperature is ≥ 87 F when employees are present
 - Heat index is ≥ 87 F when employees are present
 - Employees work in a high heat radiant area or wear clothing that restricts heat removal in areas where the temp is ≥ 87 F

Hierarchy of Controls - Heat Stress Prevention

Follow the hierarchy of controls to prevent and protect against heat related illnesses

Elimination/Substitution

- Shift Adjustment



Administrative Controls

- Heat Acclimatation/Self Monitoring
- Co-worker Observation
- Job Rotation
- Work in the Cooler Part of Day
- Medical Suitability
- Environmental/Physiological Monitoring
- Heat Prevention Training
- Work Rests
- Supervisor Submersion
- Hydration Stations

Engineering Controls

- Power Assist Equipment
- Air Conditioning
- Cooling Stations
- Increase Ventilation
- Fans
- Shade Tents
- Shielding (Enclose Heat Source)

Heat Acclimatization

High Risk Until Worker Acclimatized

- A gradual physiological adaptation (change) that improves an individual's ability to tolerate heat.
- Workers become acclimatized to the heat by slowly increasing the physical activity of work over a period of time.
- Un-acclimatized workers should not be assigned full time work in heat stress conditions during the first few days until they become adjusted to the working conditions and protective clothing.
- Once acclimatized you can lose it. High increases in heat. Long time off in a different climate.

Risk Factors for Heat Related Illness

Once you have experienced a heat related illness, you are vulnerable to experience it again



PPE Clothing



Physical Exertion



**Caffeine, Alcohol,
Medications**



Dehydration



**Pre-existing Medical
Conditions**



**Previous Heat Related
Illness**



Direct Sun Exposure



Limited Air Movement

Heat Related Illnesses

Heat related illnesses can vary in symptoms and severity. “WHAT TO LOOK FOR”

Heat Cramps

- Painful Spasms in the Arms, Legs or Abdomen
- Muscle Cramps

Heat Syncope

- Fainting (short duration)
- Dizziness
- Light Headedness

Heat Exhaustion

- Headache
- Weakness
- Heavy Sweating
- Flushed Skin
- Nausea
- Dizziness
- Irritability

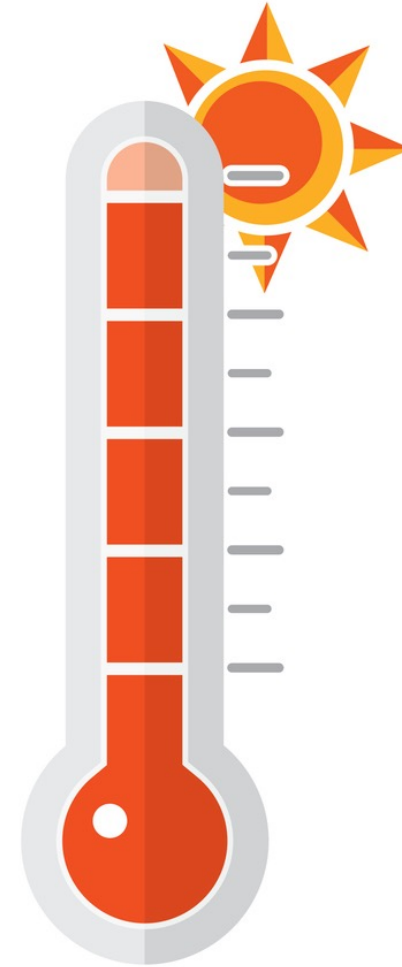
Heat Stroke

- Loss of Consciousness
- Chest Pains
- Disorientation
- Seizures
- Stopped Sweating
- Nonresponsive

HEAT PREVENTION

Employer Responsibilities

- Create a Heat Illness Prevention Plan
- Provide Training for Workers and Supervisors
- Know First Aid for Heat Illness
- Share and Post Materials for Workers
- Monitor the Temperature
- Provide Shade and Water



Tips For Preventing Heat Illness



- Hydrate Before, During and After Work
- Find Shade or a Cool Area for Rest Breaks
- Dress for the Heat
- Know your Personal Risk Factors
- Know the Signs of Heat Illness
- Know How to Respond
- Keep an Eye Out for Your Fellow Workers

Dehydrated? **Urine trouble.**



Well hydrated
No trouble here!
Maintain hydration.



Hydrated
Drink a little more water
to stay out of trouble!



Dehydrated
Trouble! Drink water until
you are well hydrated.



Severely dehydrated
Big trouble!
Drink water
immediately!

Don't wait to hydrate! Prevent heat illness.



**Heat Illness
Prevention**

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HEAT INDEX CHART

		RELATIVE HUMIDITY								
		10 %	20%	30%	40%	50%	60%	70%	80%	90%
TEMPERATURE F°	104°	98	104	110	120	>130	>130	>130	>130	>130
	102°	97	101	108	117	125	>130	>130	>130	>130
	100°	95	99	105	110	120	>130	>130	>130	>130
	98°	93	97	101	106	110	125	>130	>130	>130
	96°	91	95	98	104	108	120	128	>130	>130
	94°	89	93	95	100	105	111	122	128	>130
	92°	87	90	92	96	100	106	115	122	128
	90°	85	88	90	92	96	100	106	114	122
	88°	82	86	87	89	93	95	100	106	115
	86°	80	84	85	87	90	92	96	100	109
	84°	78	81	83	85	86	89	91	95	99
	82°	77	79	80	81	84	86	89	91	95
	80°	75	77	78	79	81	83	85	86	89
	78°	72	75	77	78	79	80	81	83	85
	76°	70	72	75	76	77	77	77	78	79
	74°	68	70	73	74	75	75	75	76	77

Directions: Locate the current temperature on the left column and then locate the relative humidity on the top row. Follow the temperature across and the humidity down until they meet; this measurement is the heat index. The heat index will increase 15 degrees in direct sunlight.

When Heat Hazards Are Present:

- Plan Ahead.
- Use the OSHA-NIOSH Heat Safety Tool App.
- Monitor the Temperature
- Use Technology for Physiological Monitoring



Response to Workers Symptoms

HEAT STROKE

- Call 911/Emergency Response Immediately
- Stay with the Person until Medical Services Arrive
- Move the Person out of the Heat Right Away
- Cool the Person through Whatever Means Available
- Place Cold Wet Cloths or Ice on the Head, Neck and Groin
- Circulate the Air Around the Worker to Speed Cooling
- If Person is Conscious Offer Chilled Water or Sports Drink with Electrolytes.
(NO CAFFIENE)
- Begin CPR if the Person Loses Consciousness, No Signs of Breathing.

Response to Workers Symptoms

HEAT SYNCOPE

- Have a Co-Worker Sit or Lie Down in a Cool Place when they First have Symptoms
- Slowly Drink Water, Clear Juice or a Sports Drink
- Monitor for Improvement

HEAT CRAMPS

- Drink Water and have a Snack or a Drink that replaces Carbohydrates and Electrolytes every 15-20 Minutes
- Avoid Salt Tablets
- Get Medical help if; Has Heart Problems, Low Sodium Diet, Cramps don't Subdue in an Hour

Response to Workers Symptoms

HEAT EXHAUSTION

- Call 911 if Medical Care is Unavailable
- Take Worker to a Clinic or Emergency Room for Medical Evaluation and Treatment
- Have Someone Stay with the Worker until Help Arrives
- Remove the Worker from the Hot Area and Give Liquids to Drink
- Remove Unnecessary Clothing, Including Shoes & Socks
- Cool the Worker with Cold Compresses or Wet Towel around Neck, Head and Face
- Encourage Frequent Sips of Cool Water

QUESTIONS?

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