



Occupational Heat Exposure





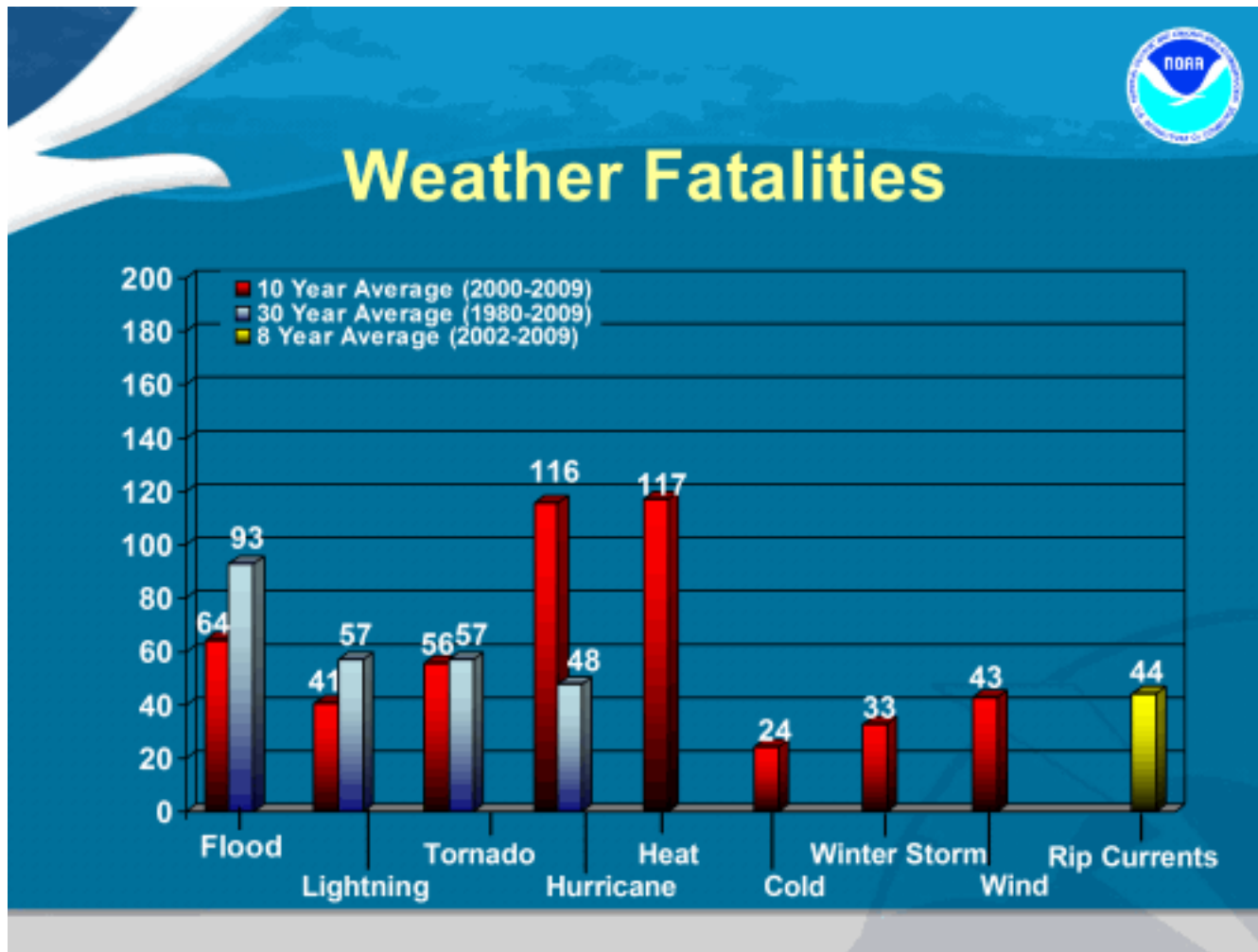
Prevention

- Most heat-related health problems can be prevented, or **risk** to develop **reduced**.
- Many heat-related injuries and deaths **preventable** with some basic precautions.
- **Train** the workforce about heat-induced illnesses.
- Use the **Buddy System**.





Severe Weather Fatalities

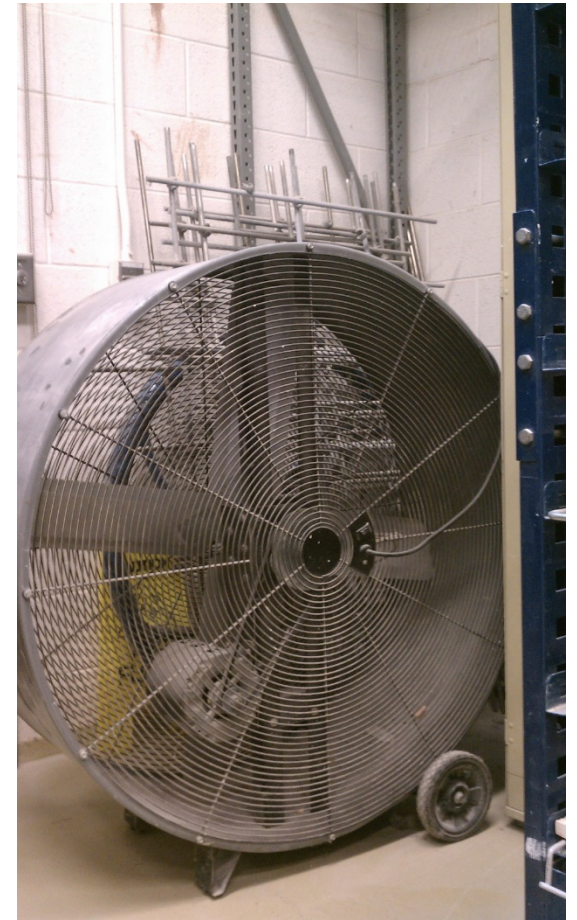


Heat is #1 killer of all weather events



Engineering Controls

- Air conditioning
- Increased general ventilation
- Cooling fans
- Local exhaust ventilation at points of high heat production or moisture
- Reflective shield to redirect radiant heat
- Insulation of hot surfaces
- Elimination of steam leaks





Work Practices

- Emergency plan
- Acclimatization of workers
- Adequate potable water close to work area
- Reduce physical demands during hot weather
- Rotating job functions
- Employees should look out for each other and know the symptoms of heat-related illness.





Water Loss



- In light activity, the body loses 2 to 3 quarts of water daily.
- In hot conditions, the body loses 6 to 8 quarts of sweat, which is critical to your body's cooling system.
- Encourage workers to drink 5 to 7 ounces of water every 15 to 20 minutes even if they are not thirsty.



Signs and Symptoms

Heat Stroke:

The most serious form of heat-related illness. Body is unable to regulate its core temperature.

- Confusion
- Loss of consciousness
- Seizures



HEAT STROKE MAY RESULT IN DEATH! CALL 911 IMMEDIATELY.



Signs and Symptoms cont.

Heat Exhaustion:

The body's response to loss of water and salt from heavy sweating.

- Headache
- Nausea
- Dizziness
- Weakness
- Irritability
- Thirst
- Heavy Sweating





Signs and Symptoms cont.

Heat Cramps:

Caused by loss of body salts and fluid during sweating. Low salt levels in muscles cause painful cramps. Tired muscles – those used for performing the work – are usually the ones most affected by cramps.



Signs and Symptoms cont.



Heat Rash:

Skin irritation, also known as prickly heat, caused by sweat that does not evaporate from the skin.



Illnesses and First Aid

	Symptoms	First Aid*
Heat stroke	<ul style="list-style-type: none">▪ Confusion▪ Fainting▪ Seizures▪ Excessive sweating or red, hot dry skin▪ Very high body temperature	<ul style="list-style-type: none">▪ Call 911 <p>While waiting for help:</p> <ul style="list-style-type: none">▪ Place worker in shady, cool area▪ Loosen clothing, remove outer clothing▪ Fan air on worker; cold packs in armpits▪ Wet worker with cold water; apply ice packs, cool compresses or ice if available▪ Provide fluids (preferably water) as soon as possible▪ Stay with worker until help arrives

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



Illnesses and First Aid cont.

	Symptoms	First Aid*
Heat exhaustion	<ul style="list-style-type: none">▪ Cool, moist skin▪ Heavy sweating▪ Headache▪ Nausea or vomiting▪ Dizziness▪ Light headedness▪ Weakness▪ Thirst▪ Irritability▪ Fast heart beat	<ul style="list-style-type: none">▪ 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 do not improve within 60 minutes▪ Do not return to work that day

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Illnesses and First Aid cont.

	Symptoms	First Aid*
Heat cramps	<ul style="list-style-type: none">▪ Muscle spasms▪ Pain, usually in abdomen, arms or legs	<ul style="list-style-type: none">▪ 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	<ul style="list-style-type: none">▪ Clusters of red bumps on skin▪ Often appears on neck, upper chest, folds of skin	<ul style="list-style-type: none">▪ Try to work in a cooler, less humid environment when possible▪ Keep the affected area dry

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Heat Hazard Assessment

Environmental factors (humidity, wind, temperature and radiant heat), clothing and workload should be considered when determining if there is a heat hazard present in an indoor or outdoor workplace.



*Wet Bulb Globe
Temperature (WBGT)
Index Meter*



Heat Stress Flag Conditions

Category	Guidelines (Ref: NAVMED P-5010)
Black Above 90°	Physical training and strenuous exercise must be suspended for all personnel. (Excludes operational commitment, not for training purposes).
Red 88 to 89.9°	Strenuous exercise must be curtailed for all personnel with less than 12 weeks training in hot weather.
Yellow 85 to 87.9°	Strenuous exercise and activity must be curtailed for new and unacclimatized personnel during the first 3 weeks of heat exposure. Avoid outdoor classes in the sun when the WBGT Index exceeds 85.
Green 82 to 84.9°	Discretion is required in planning heavy exercise for unacclimatized personnel. This is a marginal heat stress limit for all personnel.
White Less than 80°	Extreme intense physical exertion may precipitate heat exhaustion or heat stroke, therefore, caution should be taken. <i>Recommend posting.</i>

Numbers are Wet Bulb Globe Temperature (WBGT) Index, not temperature

Wearing personal protective equipment (PPE) or full body work clothing can add 10 points to measured WBGT. Limits of exposure should be adjusted accordingly.



What You Can Do

- Ensure adequate sleep, hydration and nutrition
- Start hydrated and stay hydrated with regular intake of food and fluids.
- Avoid excessive hydration; it will not prevent heat illness but may lead to over-hydration.
- Rehydrate slowly and steadily; rapid rehydration may lead to over-hydration.



Sun Safety

Sun's ultraviolet rays can damage in 15 minutes.

- Use a broad spectrum sunscreen with at least SPF 15, 15 minutes prior to exposure, and reapply after 30 minutes of heavy sweating.
- Combine shade, clothing, hat with brim and sunscreen.

Occupational Safety and Health Administration (OSHA) requires employers to minimize risk of harm, such as increasing amount of shade, decreasing UV reflection and creating work schedules to minimize UV exposure.



Final Notes

Know your people and yourself.

- People with past heat injuries are more susceptible.
- High risks: certain medical conditions (obesity, high blood pressure, heart disease, pregnancy) or certain medications (diuretics)
- Recognize early signs and symptoms of heat illness: dizziness, headache, nausea, weakness, unsteady walk, and muscle cramps.