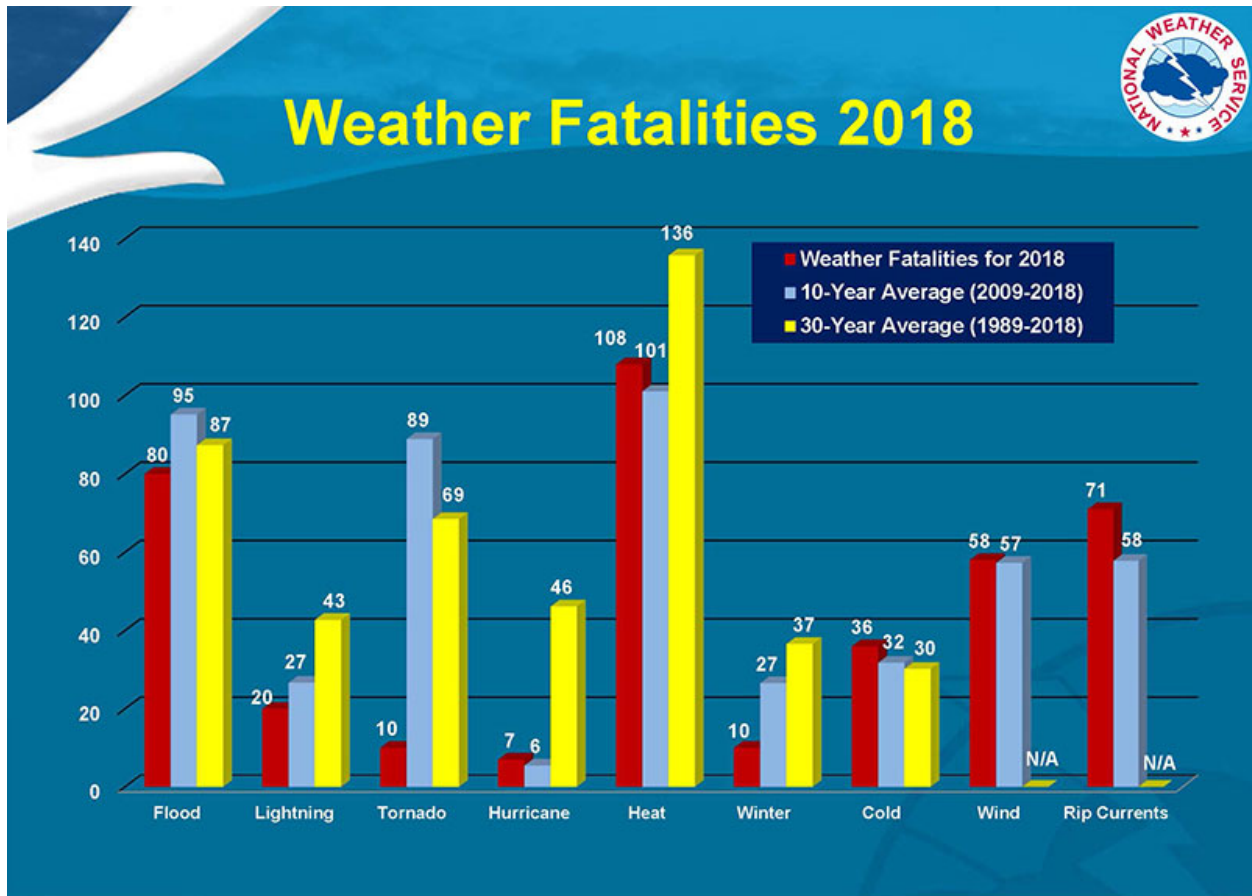


RECOGNITION, PREVENTION, AND FIRST AID FOR HEAT RELATED ILLNESSES

The Occupational Health and Safety Administration (OSHA) reports that out of 472 Texas fatalities for which OSHA had closed its case or issued citations in 2017 through 2019, twelve of them were heat related deaths in Texas. They occurred between May and September. The National Weather Service also recorded 108 heat related fatalities in the United States in 2018. Each of these deaths was preventable with the proper awareness, planning, and prevention techniques.



The U.S. Natural Hazard Statistics provide statistical information on fatalities, injuries and damages caused by weather related hazards. These statistics are compiled by the Office of Services and the National Climatic Data Center from information contained in Storm Data, a report comprising data from NWS forecast offices in the 50 states, Puerto Rico, Guam and the Virgin Islands.

In Texas, the onset of heat related illness can occur almost any time of the year, especially in South Texas. As temperatures rise through the spring and summer, members should take precautions to prevent heat related illnesses that can become life threatening

conditions very quickly. Remember that ambient temperature is not the only factor that plays a role in creating the potential for heat injuries; humidity can play a life-threatening role as well. Since our bodies rely on the evaporation of sweat as a major method of cooling, high humidity reduces our ability to cool the body, increasing the risk of heat illnesses. The following Heat Index chart shows the relative effects of temperature and humidity.

NOAA's National Weather Service

Heat Index

Temperature (°F)

	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution
 Extreme Caution
 Danger
 Extreme Danger

As the chart illustrates, the danger of heat related illness is very great even at the relatively mild temperature of 90 degrees when the humidity is high. In addition to the chart above, OSHA has developed an “app” called the “Heat Safety Tool” for use on iPhone and Android devices. The app calculates the heat index and provides an estimate of the heat illness risk levels; it also provides information on how to monitor for signs and symptoms of heat illness. There is no cost for this tool. The app is available for download from OSHA for both Apple and Android devices at:

https://www.osha.gov/SLTC/heatillness/heat_index/heat_app.html

The app has a GPS location feature that gives the user site specific temperatures, humidity and heat index readings. Supervisors and managers should use the chart and app in conjunction with local forecasts as they plan the workday for their crews.

Planning for high heat and humidity includes the following important elements:

- Equip each work truck or worksite with adequate and easily accessible cool water and encourage frequent breaks and consumption of water during the day.
- Workers should eat regular meals and snacks. The food provides enough salt and electrolytes to replace those lost through sweating, provided that enough water is consumed.
- Make sure employees have appropriate clothing for the conditions. Heat and humidity are exacerbated by direct sunlight, so protection from the sun and UV rays is also important. Light weight, light colored clothing and a wide brimmed hat can help. If a hard hat must be worn, lightweight attachments can provide a wider brim and neck protection.
- Consider schedule changes so heavy outside work can be done early in the day before temperatures peak.
- Monitor employees for signs of heat related illness and take action quickly to avoid serious problems.

Common heat related illnesses, their symptoms and basic first aid include the following:

- **Heat Stroke** is the most serious heat related illness and can cause death or permanent disability. It occurs when the body loses its ability to shed heat. When this happens the body's temperature rises rapidly. Symptoms include:
 - Hot, dry skin or profuse sweating
 - Hallucinations
 - Chills
 - Throbbing headache
 - High body temperature
 - Confusion or dizziness
 - Slurred speech

First Aid for Heat Stroke: **1st call 911** then move the person out of the heat and direct sunlight and begin cooling by soaking clothes with water or spraying, sponging, or showering them with water, and fanning their body.

- **Heat Exhaustion** is the body's response to excessive loss of water and salt through sweating. Older clients or workers with high blood pressure are more susceptible to heat exhaustion. Symptoms include:
 - Heavy sweating
 - Extreme weakness or fatigue
 - Confusion or dizziness
 - Nausea
 - Clammy, moist skin
 - Pale or flushed complexion
 - Muscle cramps
 - Fast and shallow breathing

First aid for heat exhaustion includes moving the person to a cooler, preferably air-conditioned space. Have them drink plenty of cool water or other non-alcoholic beverage and have them take a cool shower or bath. Monitor for worsening symptoms and be prepared to seek medical aid.

Heat cramps and heat syncope are other heat related illnesses.

- Heat cramps usually occur in leg, arm or abdominal muscles and are the result of depleted salt content due to heavy sweating. First aid includes stopping all activity and moving to a cooler place, drinking clear liquids or a sports beverage to replace lost electrolytes, and avoiding strenuous work after the cramps subside.
- Heat syncope or fainting/dizziness may occur after rising suddenly from a sitting or squatting position or from standing for a long period. It is the result of dehydration or lack of acclimatization to hot and humid climate. First aid is similar to that for heat cramps. In both cases, the person should be monitored for other symptoms that may indicate onset of heat stroke or heat exhaustion.

Employers should train their workers to recognize signs of heat related illnesses and basic first aid measures. Although any person may suffer from some of the symptoms of heat related illness, they are preventable and treatable before a life-threatening condition arises. Train your staff to watch out for the signs and symptoms in each other, the people in their care, and to not be afraid to take action.

Sources: Centers for Disease Control & Prevention, "Tips for Preventing Heat-Related Illness." OSHA, Fatality Inspection Data, 2017 -2019 CY" and NOAA, National Weather Service, Weather Related Fatality and Injury Statistics, 2.