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# Cal/OSHA Heat Illness Prevention: What you need to know...

## The new Heat Illness Prevention Standard

By Len Welsh, Acting Chief, Cal/OSHA



As temperatures rise, so does the risk of heat illness. The California Division of Occupational Safety and Health (Cal/OSHA) wants to remind all employers that heat illness can be deadly. This risk is generally the highest for people who work outdoors, and that is why California's first heat illness prevention standard was developed.

Heat illness, a medical condition that results from the body's inability to cope with heat and cool itself, contributed to 13 work-related deaths in 2005, and was an underlying factor in the high percentage of non-fatal incidents reported last year.

### Heat illness is preventable

The best defense against heat-related illnesses and fatalities is prevention. The new Heat Illness Prevention Standard, Title 8, California Code of Regulations, Section 3395, adopted on June 15, 2005, requires all employers with outdoor worksites to take 4 basic steps to prevent heat illness:

1. Provide heat illness prevention training to all employees, including supervisors.
2. Provide enough fresh water so that each employee can drink at least 1 quart per hour and encourage them to do so.
3. Provide access to shade for at least 5 minutes of rest when an employee believes he or she needs a preventative recovery period. They should not wait until they feel sick to do so.
4. Develop and implement written procedures for complying with the heat illness prevention standard.

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(415) 972-8670

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Foster City  
(650) 573-3812

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(626) 256-7913

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(714) 558-4451

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(916) 263-2800

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(619) 767-2280

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(213) 576-7451

[www.dir.ca.gov/DOSH/HeatIllnessInfo.html](http://www.dir.ca.gov/DOSH/HeatIllnessInfo.html)

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(805) 654-4581

### Heat illness types and symptoms

**Heat stroke**, the most serious health problem for workers in hot environments, is caused by the failure of the body's internal mechanism to regulate its core temperature. Sweating stops and the body can no longer rid itself of excess heat. Signs include (1) mental confusion, delirium, loss of consciousness, convulsions or coma; (2) a body temperature of 106 degrees F or higher; and (3) hot dry skin which may be red, mottled, or bluish. Victims of heat stroke will die unless treated promptly.

**Heat exhaustion** results from loss of fluid through sweating when a worker has failed to drink enough fluids or take in enough salt or both. The worker with heat exhaustion still sweats but experiences extreme weakness or fatigue, giddiness, nausea, or headache. The skin is clammy and moist, the complexion pale or flushed, and the body temperature normal or slightly higher.

**Heat cramps**, painful spasms of the muscles, are caused when workers drink large quantities of water but fail to replace their bodies' salt loss. Tired muscles -- those used for performing the work -- are usually the ones most susceptible to cramps.

**Fainting** (heat syncope) may be a problem for the worker not acclimated to a hot environment who simply stands still in the heat.

**Heat rash**, also known as prickly heat, may occur in hot and humid environments where sweat is not easily removed from the surface of the skin by evaporation. When extensive or complicated by infection, heat rash can be so uncomfortable that it inhibits sleep and impedes a worker's performance or even results in temporary or permanent disability.



## Use Best Practices

The new Heat Illness Prevention Standard provides a solid foundation for employers to follow in protecting outdoor workers from heat related illnesses and fatalities. But with the record temperatures we are experiencing and are expected to endure in the upcoming summers, Cal/OSHA encourages employers to go beyond the basics in worker safety, and take the initiative to provide a healthier work environment.

### Check the Weather

In addition to the regulatory requirements, many best practices can be implemented to add a degree of additional safety to the workplace. First, develop a habit of checking the heat index. If you anticipate heat waves you can be prepared. [www.nws.noaa.gov/om/heat/index.shtml](http://www.nws.noaa.gov/om/heat/index.shtml)



### Tailgate Trainings

Though the standard requires initial training, as a best practice employers should consider conducting weekly or daily tailgate trainings on heat illness throughout the summer.

### IIPP

As a best practice, employers are encouraged to integrate heat illness prevention procedures into their Injury and Illness Prevention Programs (IIPPs).



## TRAINING

Before employees can work outdoors, employers are required to provide them with heat illness prevention training. This mandatory training for supervisors and employees under the new standard includes the following information:

Environmental and personal risk factors

Employer's heat illness prevention plan and procedures

They need to drink water frequently throughout the day.

Importance of acclimatization (allowing the body to adjust gradually to the work in high heat)

Types of heat illness and the signs and symptoms

Necessity of immediately reporting to an employer any signs or symptoms

Employer's procedures for responding to symptoms

Employer's procedures for contacting emergency medical services. This includes alternative modes of transportation

Employer's procedures for emergency communications. This includes the emergency response procedures such as location, local medical services, and communication alternatives.

### Adjusting to the heat

One training component for employees on heat illness prevention is the importance of acclimatization, or adjusting to physical activity in hot weather. The body needs time to adapt to increased heat and humidity, especially when one is engaged in heavy physical exertion. Typically, people need four to fourteen days to adjust fully to significant increases in the heat. Cal/OSHA data reveals that most workplace deaths related to heat illness that occurred last year involved new employees who were on the job only one to four days and were unaccustomed to working in hot or humid weather.

While the heat illness prevention standard calls for employers to train employees on the importance of acclimatization, it is up to employers to determine what acclimatization procedures they will use. The best strategy is to allow employees, and especially new ones, to adjust to hot weather by gradually increasing to a full work shift and pace. On very hot days, other good strategies include timing the shift so that more work can be done during the cooler parts of the day, increasing the number of water and rest breaks, and using a "buddy system" so that workers and supervisors can monitor each other. Also, employees should be reminded of the cooling benefits of wearing loose fitting, light-colored clothing and a wide-brimmed hat, when it's feasible.

### SHADE

Recent safety and health data shows that all the surviving victims of heat illness had access to some shade during work periods, lunch, or at breaks. Under Cal/OSHA's new standard, an employee working outdoors who wants to cool off must be provided with shade for 5 minutes at a time. Shade for heat illness recovery periods must be accessible to employees at all times. In industries other than agriculture, employers may utilize measures other than shade to provide cooling if they can demonstrate that these alternative measures are at least as effective as shade.



**SHADE** *Continued*

According to the new standard, shade means blockage of direct sunlight. Shade is sufficient when objects do not cast a shadow in the shaded area and there is sufficient space for the employee to be comfortable. Shade is not adequate when the temperature in the shaded area prevents cooling. You must avoid sources of shade such as metal sheds or parked cars that are hot from sitting in the sun. Also, tractors and other machinery do not qualify as sources of shade and have the potential to create an even greater hazard.

If you have employees who work outdoors, consider some easy-to-assemble portable sources of shade, such as umbrellas, canopies, or other temporary structures. Buildings, canopies, and trees all can qualify for shade as long as they block the sunlight and are either ventilated or open to air movement.

**WATER**

The third component of the new standard requires an employer to provide employees, working outdoors, one quart of potable, fresh and cool water per person, per hour. In last year's case studies, Cal/OSHA data revealed drinking water was present at all worksites, even though 78% of those who succumbed to the heat suffered from dehydration. Therefore, it is critical to keep drinking water accessible and remind your workers to drink it frequently.

**WRITTEN PROCEDURES**

The new standard requires an employer's heat illness prevention procedures to be in writing and made available to employees and to representatives of Cal/OSHA upon request. These written procedures must include:

How an employer will comply with the heat illness standard requirements.

How to respond to symptoms of possible heat illness, including how emergency medical services will be provided.

How to contact emergency medical services, and if necessary, how employees will be transported to a point where they can be reached by an emergency medical service provider.

How they will ensure that, in the event of an emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders.

Employers are encouraged to integrate their heat illness prevention procedures into their Injury and Illness Prevention Programs (IIPPs).

All the elements of the Heat Illness Prevention standard must be implemented to prevent serious illness to your workers. By protecting your employees from heat illness, you promote a healthier and more productive workplace.

To learn more about the shade, water, written procedures and training requirements of the new Heat Illness Prevention Standard, visit [www.dir.ca.gov](http://www.dir.ca.gov).

**Use Best Practices****Water and Rest Breaks**

An essential best practice is to provide water instead of drinks with caffeine and sugar, as these can dehydrate a person even more. Add ice to water, increase the number of water and rest breaks for employees, and keep the water nearby!

**Shade**

Provide your workers with shade as required and whenever else possible. Consider easy-to-assemble portable sources of shade, such as umbrellas, canopies, or other temporary structures and remember the investment you're making is in your employees' lives.

**Clothing**

Another simple strategy to prevent heat illness is to employ the cooling benefits of loose fitting, light-colored clothing and wide-brimmed hats, when and if work allows.

**Monitor**

Utilize a "buddy system" so that workers and supervisors can monitor each other when out in the field.

**Shift Change**

When temperatures are excessive, time your shifts to accomplish heavy work during the cooler parts of the day, and consider starting and/or ending your shifts early. Also, alternate tasks when possible.



# Heat Illness Prevention Update

Cal/OSHA is a division of the Department of Industrial Relations  
Please visit us on our website at: [www.dir.ca.gov](http://www.dir.ca.gov)



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## Cal/OSHA Consultation Services: A valuable employer resource

Cal/OSHA Consultation Services assists employers in reducing their workplace injuries and illness through on-site visits, telephone consultation, publications and educational outreach. In addition, employers may receive recognition for their achievements and inspection exemptions through Cal/OSHA partnership programs.

All consultations are confidential from Cal/OSHA Enforcement and are free of charge. If you are a California employer who wishes to obtain assistance from Cal/OSHA Consultation, or want to learn more about what services are available, you can do so by calling the toll-free assistance number:

1 (800)963-9424

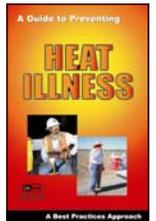
or visiting the website at

[www.dir.ca.gov/DOSH/consultation.html](http://www.dir.ca.gov/DOSH/consultation.html).

## Free Cal/OSHA Workplace Health and Safety Publications

Two new, free publications on heat illness prevention will be available soon through the Cal/OSHA Research and Education Unit.

**Employers Guide to Heat Illness: A Best Practices Approach**— This publication has useful information on risk factors and key elements on preventing and responding to heat illness. The information can be used to create a written heat illness prevention program. (Available in English and Spanish)



**Protect Yourself from Heat Illness** — This handy pocket card suggests practical steps employees can take to prevent heat illness. (Available in English and Spanish)

More than 100 free workplace health and safety publications, on various topics and in various languages, (including Spanish) are available on the Cal/OSHA website. You can order or download copies from the internet at [www.dir.ca.gov/dosh/puborder.asp](http://www.dir.ca.gov/dosh/puborder.asp), or call your local Cal/OSHA office.

For more information on heat related illness and the new Heat Illness Prevention Standard please visit [www.dir.ca.gov](http://www.dir.ca.gov).

