

Section 22: HEAT-RELATED ILLNESS (HRI) PREVENTION

INTRODUCTION

Exposure to excessive heat can result in heat-related illnesses (HRI) such as heat rash, fatigue, heat exhaustion, fainting or heat stroke. Employees engaged in strenuous activities at high temperatures are susceptible, and exposure to direct sunlight increases the heat effect. Heat-generating equipment or surfaces can amplify the temperature, and increased relative humidity hampers the body's ability to release internal body heat.

APPLICABILITY

This program applies to all employees who perform physically-demanding jobs in areas with high temperatures and humidity. Outdoors, these are generally temperatures in the upper 80's and above. The program is in effect only from May 1 through September 30 of each year.

This program complies with WAC 296-62-095 and takes effect when the outdoor temperature is 89 degrees Fahrenheit or above, for personnel performing outdoor work wearing regular work clothes. It takes effect at 77 degrees for employees wearing coveralls, jackets and sweatshirts, and at 52 degrees for employees wearing non-breathing clothes (vapor barriers) such as Tyvek suits.

This program does not apply to incidental exposure, defined as work activity outdoors for not more than fifteen (15) minutes in any sixty (60) minute period.

RESPONSIBILITIES

County Safety and Health Professionals:

- Develop written HRI programs
- Provide technical assistance to supervisors and managers
- Provide employee training

Supervisors and Managers:

- Evaluate, with assistance from Safety and Health Professionals, HRI hazards, including temperature, relative humidity, radiant heat (sun or hot surfaces), degree of physical workload, and clothing or PPE contribution
- Ensure compliance with this program
- Provide adequate water (minimum of one quart per hour per employee) and a shaded area (canopies, truck cabins, air conditioned vehicles, etc.) for employee rest when needed to prevent HRI
- Relieve employees showing symptoms of HRI from duty and provide sufficient means to reduce body temperature if needed
- Carefully evaluate employees removed from work before return to work
- Ensure medical attention for employees experiencing signs of serious HRI

Employees:

- Comply with management directives for prevention of HRI
- Recognize symptoms of HRI
- Recognize the following personal factors that affect susceptibility to HRI:

○ lack of physical fitness	○ lack of acclimatization
○ age (either young or older)	○ dehydration
○ obesity	○ alcohol use (even night before)
○ nicotine use	○ use of prescription or nonprescription diuretic (antihypertensive) drugs
○ diarrhea	○ chronic disease

- Drink adequate amounts of water (up to one quart per hour)
- Notify management when symptoms of HRI emerge
- Ask for breaks when needed to reverse possible onset of HRI
- Attend training on assessment, prevention, and treatment of HRI

TRAINING

Every King County employee engaged in strenuous outdoor activities during the summer months or strenuous activities indoors at high temperatures shall be provided annual training prior to work assignment.

The employee training will contain the following information:

1. The environmental factors that contribute to the risk of HRI;
2. Personal factors that may increase susceptibility to HRI;
3. King County's procedures for identifying, evaluating, and controlling exposure;
4. The importance of removing personal protective equipment during all breaks;
5. The importance of frequent consumption of small quantities of water.
6. The importance of acclimatization;
7. The different types of heat-related illness and the common signs and symptoms of heat-related illness;
8. The importance of immediately reporting to the supervisor symptoms or signs of heat illness in themselves or in co-workers;
9. King County's procedures for responding to symptoms of possible heat-related illness, including how emergency medical services will be provided should they become necessary; and
10. The purpose and requirements of the State standard.

The supervisor or lead for these employees will receive the following additional training:

1. The King County HRI Prevention program;
2. The procedures the supervisor is to follow to implement the program;

3. The procedures the supervisor is to follow when an employee exhibits signs or symptoms consistent with possible HRI, including emergency response procedures;
4. Procedures for moving employees to a place where they can be reached by an emergency medical service provider, if necessary; and
5. How to provide clear and precise directions to the emergency medical provider who needs to find the work site.

HEAT-RELATED ILLNESSES AND KING COUNTY PREVENTION ACTIONS

<i>Heat-related illness</i>	<i>Signs and Symptoms</i>	<i>Treatment</i>	<i>Prevention</i>
Heat Rash	<ul style="list-style-type: none"> - Red, itchy skin - Bumpy skin - Skin infection 	<ul style="list-style-type: none"> - Cool skin - Keep affected area dry - Control itching and infection with medication 	Sleep in cool quarters to allow skin to dry between heat exposures
Heat Cramps	<ul style="list-style-type: none"> - Muscle cramps or spasms - Grasping the affected area - Abnormal body posture 	<ul style="list-style-type: none"> - Drink salted water or sport drinks - Rest, cool down - Massage affected muscle - Get medical evaluation if cramps persist 	Adequate salt intake with meals.
Heat Exhaustion	<ul style="list-style-type: none"> - High pulse rate - Extreme sweating - Pale face - Insecure gait - Headache - Clammy and moist skin -Weakness - Fatigue -Dizziness 	<ul style="list-style-type: none"> - Move to shade and loosen clothing - Initiate rapid cooling - Lay flat and elevate feet - Monitor recovery - Drink small amounts of water - Evaluate mental status (ask who? where? when? questions) - Keep at rest until urine volume indicates that water balances have been restored. - If no improvement call 911 	Acclimatize workers using breaking in schedule, ample drinking water to be available at all times and taken frequently during work.

<i>Heat-related illness</i>	<i>Signs and Symptoms</i>	<i>Treatment</i>	<i>Prevention</i>
Heat Stroke	<ul style="list-style-type: none"> - Any of the above but more severe - Hot, dry skin (25-50% of cases) - Altered mental status with confusion or agitation - Can progress to loss of consciousness and seizures. - Can be fatal 	<ul style="list-style-type: none"> - Call 911 - Immediately remove from work - Start rapid cooling - Lay flat and elevate feet - If conscious give sips of water - Monitor airway and breathing – administer CPR if needed 	<p>Pre-employment medical screening of workers, selection based on health and physical fitness, acclimatization for 5-7 days by graded work and heat exposure, monitoring employees during sustained work in severe heat.</p>

HRI PREVENTION

The supervisor will notify the work group at dispatch of the possibility of **HEAT-RELATED ILLNESS (HRI)** and remind them of the preventative measures to be taken and selected treatments.

This must occur when the following conditions are expected at any time during any day from May 1 through September 30 in any given year:

- When temperature is expected to be 89°F or greater; or
- When employees are required to wear coveralls, jackets and sweatshirts and temperature is expected to be 77°F or greater; or
- When temperature is expected to be 52°F degrees or greater and employees are required to wear non-breathing clothes (vapor barriers) such as Tyvek suits.

PRACTICAL FIELD IMPLEMENTATION ACTIONS FOR OUTSIDE WORK

The following actions are required when the program is in effect:

- Leads will add at least one additional rest break during the first and second halves of the work shift and will instruct workers to rest sitting or lying down in shade.
- If possible, a worker buddy system will be used to monitor each other.
- All workers must be supplied with, or have easy access to, one quart of water per hour.
- Workers should be reminded to look out for HRI symptoms in themselves and fellow workers.
- Workers need to take their regularly-scheduled breaks in a shaded area.

- Hot surfaces, restrictive PPE, and heavy workloads need to be taken into consideration for possible further restrictions.

REFERENCES

WAC 296-62-095