



Heat Illness Prevention Program

Office of Environmental Health & Safety



Heat Illness Prevention Program

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Heat Illness Prevention Program

1.0 PURPOSE

The Heat Illness Prevention Program provides operational guidance for Tulane employees and community to prevent heat-related illness.

2.0 SCOPE

Hot work environments subject members of the Tulane Community to heat related illnesses. This program aims to mitigate occurrences of heat related illness at Tulane University.

3.0 APPLICATION

The Heat Illness Prevention Program applies to employees of Tulane University.

4.0 DEFINITIONS

Acclimatization	The beneficial physiological adaptations that occur during repeated exposure to a hot environment.
Excessive Heat Warning	A heat-related notification issued by the National Weather Service when the forecasted heat index is higher than 113 °F or the forecasted temperature is higher than 105 °F for at least two days
Heat Advisory	A heat-related notification issued by the National Weather Service and local partners. May be issued as a Heat Advisory, Excessive Heat Watch, or Excessive Heat Warning
Heat Exhaustion	Occurs when the body’s ability to regulate its internal temperature begins to fail.
Heat Illness	A serious medical condition resulting from the body’s inability to cope with a particular heat load.
Heat Index	An index that combines the temperature and relative humidity to more accurately describe how conditions feel to the human body
Heat Stress	The external heat load placed on the body due to environmental characteristics
Heat Stroke	The inability of the body to regulate its internal temperature due to heat stress.

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High Risk Department	Departments whose job tasks put them at increased risk of having a heat related injury. High risk departments are typically those that have outdoor job tasks, work near heat generating equipment, or work in unconditioned buildings.
Wet Bulb Globe Temperature (WBGT)	The combination of the effect of the four main thermal components affecting heat stress: air temperature, humidity, air velocity, and thermal radiation

5.0 RESPONSIBILITIES

5.1. THE OFFICE OF ENVIRONMENTAL HEALTH AND SAFETY (OEHS)

- A. Develop, maintain, and periodically review the Heat Illness Prevention Program.
- B. Provide training to impacted departments.
- C. Assess job tasks for heat stress risks.
- D. Identify high risk departments
- E. Notify high risk departments when a heat advisory is issued.

5.2. UNITS, DEPARTMENT HEADS/DIRECTORS, PRINCIPAL INVESTIGATORS, OR SUPERVISORS

- A. Identify employees have job duties, environments, or personal risk factors that put them at higher risk of heat related illness.
- B. Implement controls that reduce the risk of heat related illness according to this program.
- C. Monitor weather (current and forecasted). Make job duty adjustments and implement controls that reduce the risk of heat-related illnesses.
- D. Complete annual training.
- E. Ensure employees receive proper training on heat illness prevention.
- F. Request assessment of job duties or locations where heat related illness may occur.

5.3. INDIVIDUAL EMPLOYEES

- A. Complete annual training if identified in a high-risk department
- B. Use controls procedures implemented by supervisors
- C. Report heat related illness or injuries to their supervisor.
- D. Watch for signs of heat related illness in co-workers.
- E. Understand personal risk factors that increase the likelihood of heat illness.

6.0 TRAINING

Annual training is required for all employees and supervisors whose job duties are at increased risk for heat related illness. Training may be completed through TULearn at the following link: [Heat Illness Prevention](#) or coordinating with OEHS to hold in person training. Heat related illness prevention training is an annual requirement.

6.1. TRAINING CONTENT

- A. Environmental and personal risk factors to heat related illness
- B. Types of heat-related illness and common symptoms

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- C. Procedures to assess the environment
- D. Controls that reduce risk of heat related illness
- E. Heat Acclimatization
- F. Heat related illness response and emergency procedures
- G. Injury reporting

7.0 HEAT ILLNESS PREVENTION PROGRAM PROCEDURES

7.1. Heat Assessment Methods

- A. **Heat Index** is a value that considers both temperature and humidity. Assess the heat index when planning job duties. Refer to Table 7-1 to aid providing controls and safe work practices to mitigate heat illness based on the heat index level.
 - a. NIOSH in conjunction with OSHA has created a Heat Index app that provides information based on current conditions at your location. The app contains information on heat illness prevention and has an hourly forecast. A link to download the app on an android or iOS device can be found in the resources section.
- B. **Wet Bulb Globe Temperature (WBGT)** – The WBGT is a combination of the four main thermal components: air temperature, humidity, air velocity, and thermal radiation. This assessment method is best used in locations where direct sunlight or radiant heat sources are located.

Table 7.1. Heat Illness Prevention Controls Based on Heat Index

Heat Index	Risk Level	Controls
91 °F – 103 °F (32 °C – 39 °C)	Caution	<ul style="list-style-type: none"> - Stay Hydrated - Ensure Emergency Procedures are in place - Monitor weather for changing conditions - Remind people to drink water often - Be able to recognize heat related illness and monitor coworkers for signs of heat illness - Schedule breaks in cool shaded areas or air-conditioned spaces. - Review heat related injury prevention training topics - Acclimatize personnel
103 °F – 115 °F (39 °C – 46 °C)	Danger	<ul style="list-style-type: none"> - Actively alert personnel of dangerous heat - Encourage and ensure personnel are hydrating - Use engineering controls such as reducing workers metabolic rate, using fans for air movement, and providing shade - Modify work activities (reschedule work, rotate jobs) - Use Personal Protective Equipment (PPE), such as cooling vests, phase-change material cooling vests, or water-cooling vests. (Most effective when utilized during breaks) - Modify work schedules to conduct job duties during cooler parts of the workday

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Greater Than 115 °F (> 46°C)	Extreme Danger	<ul style="list-style-type: none"> - Reschedule non-essential activity for times or dates when heat index is lower. - Alert personnel to extreme heat hazard. - Strenuous work tasks or those that require use of heavy or non-breathable clothing should not be conducted when heat index is at or greater than 115 °F unless critical and controls are implemented. - Develop and enforce protective work/rest schedules.
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7.2 General Heat Illness Prevention Controls

A. Engineering Controls

- a. Provide shade by using portable canopies or similar equipment
- b. Fans to provide air movement or air conditioning indoor spaces
- c. Local exhaust ventilation to capture high heat source points
- d. Insulating hot surfaces
- e. Eliminating steam leaks
- f. Use of mechanical equipment to reduce manual work

B. Administrative Controls

- a. Provide potable cool water near job sites (plumbed, bottled or water coolers). Encourage fluid replacement every 15 to 20 minutes. Electrolyte replacement using electrolyte drinks in high heat index environments is also recommended.
- b. Supervision and buddy system where coworkers can look at and identify the potential onset of heat related illness in coworkers.
- c. Work Rest Cycles – Ensure mandatory breaks are taken in cool environments such as an air-conditioned building or vehicle. Duration of breaks should increase as the heat index rises. A sample work rest cycle is provided in **Appendix A**
- d. Breathable clothing material is recommended. A breathable hat in a sunny environmental also helps shade the head.
- e. Utilize personal protective equipment during breaks for maximum cooling effects.

7.3 Heat and Work Acclimatization

- A. **Acclimatization** is the gradual adaptation of the body to working in hot environments and to tolerate heat stress.
- B. Heat Acclimatization should be implemented when employees are tasked with new job duties in hot environments or when job duties in hot environments change to include the use of protective gear, higher metabolic rates, or have been out of the position for an extended period of time
- C. Acclimatization Process should reduce the duration of the work in a hot environment but not the intensity. Example Acclimatization schedule:
 - a. First Day - Employees should only work 20 percent of the normal duration within the hot environment
 - b. Additional Days – Increase work duration by 20 percent each day until a normal operation is reached.

7.4 High Risk Departments

- A. A High-Risk Department are typically those that have outdoor job tasks, work near heat generating equipment, or work in unconditioned buildings.

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- B. OEHS will determine high risk departments using heat stress questionnaires, review of occupational injury history, and occupational risk assessments.
- C. Appendix C lists the known high-risk departments and contacts.

7.5 Heat Advisory Notifications

- A. OEHS will monitor the National Weather Service for heat related advisories such as a Heat Advisory, Excessive Heat Watch, or Excessive Heat Warning.
- B. If a heat related advisory is issued by the National Weather Service OEHS will notify high risk departments through email.
- C. Refer to Appendix D for Heat Advisory Procedure

8.0 HEAT-RELATED ILLNESS AND RESPONSE

8.1 Personal Risk Factors

- A. Personal Risk Factors may contribute to increased levels of stress on the body when working in a hot environment. Individuals and supervisors should be aware of the risk factors that may make you more susceptible to heat-related injuries. Personal risk factors include:
 - a. Age
 - b. Obesity
 - c. Diabetes
 - d. High blood pressure
 - e. Heart Disease
 - f. Use of medications such as diuretics, psychiatric, and blood pressure medications
 - g. Alcohol use
 - h. Use of illicit drugs such as stimulants and opioids

8.2 Heat Exhaustion

Heat Exhaustion is the body's response to an excessive loss of water and salt typically through excessive sweating.

- A. Symptoms:
 - a. Heavy Sweating
 - b. Headache
 - c. Nausea
 - d. Dizziness
 - e. Weakness
 - f. Irritability
 - g. Thirst
 - h. Elevated body temperature
 - i. Decreased urine output
- B. Response and First Aid
 - a. Move person to cool place and loosen or remove clothing including shoes and socks
 - b. Apply cool wet compresses to the head, neck, and face or take a cool bath or shower
 - c. Sip cool water or electrolyte replacement drinks.
 - d. Seek medical attention if symptoms worsen or last greater than one hour.
 - i. If vomiting seeks medical attention

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8.3 Heat Stroke

Heat Stroke is the most serious heat-related illness and occurs when the body can no longer regulate its temperature. Heat Stroke is a medical emergency.

- A. Symptoms:
 - a. Confusion, altered mental state, slurred speech
 - b. Loss of consciousness
 - c. Hot, dry skin or profuse sweating
 - d. Seizures
 - e. Very high body temperatures
 - f. May be fatal if treatment is delayed
- B. Response and First Aid
 - a. Call emergency services **Immediately**.
 - b. Stay with person until emergency medical personnel arrive
 - c. Move person to a cool shaded area and remove outer layer of clothing
 - d. Cool person quickly by using cold water applied to the skin either directly or soaking clothing
 - e. Circulate air around person to aid with evaporative cooling
 - f. Apply cool wet compresses to the head, neck, armpits, and groin

8.4 Medical Care and Injury Reporting

- A. Emergencies
 - a. TUPD Uptown: (504)865-5911 or 911
 - b. TUPD Downtown: (504)988-5555 or 911
 - c. TUPD TNPRC: (985)871-6411 or 911
 - d. Off campus locations: 911
- B. Non-emergency First Aid
 - a. Occupational Health Clinic Uptown and Downtown: (504)988-8443
 - b. Primate Center: (985)871-6475
- C. Injury Reporting
 - a. Immediately following a workplace injury related to heat, notify supervision, and call the Employee Injury Call Center at (855)433-9938

9.0 RECORDKEEPING

9.1 OEHS

- A. Shall maintain training records of any OEHS coordinated training.
- B. Heat illness prevention training records conducted through the online training portal TULearn shall be downloaded annually and maintained by OEHS.

10.0 RESOURCES

- 10.1 [Occupational Safety and Health Administration Heat An Overview: Working in Outdoor and Indoor Heat Environments](#)
- 10.2 [The National Institute for Occupational Safety and Health \(NIOSH\): Heat Stress](#)
- 10.3 [CalOSHA: Heat Illness Prevention](#)
- 10.4 [American Red Cross Extreme Heat Preparedness Checklist](#)
- 10.5 [NIOSH: Criteria for a Recommended Standard Occupational Exposure to Heat and Hot Environments](#)

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10.6 [City of New Orleans Hazard Mitigation Plan Extreme Heat](#)

11.0 REVISION HISTORY

Revision No.	Effective Date	Responsible Department	Description of Revision	Approved by
Initial		OEHS	Initial Version	

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Appendix A

Example Work/Rest Schedule for Heat Exposure

Example Work/rest schedules for workers wearing normal work clothing

Adjusted temperature (°F) [†]	Light work (minutes work/rest)	Moderate work (minutes work/rest)	Heavy work (minutes work/rest)
90	Normal	Normal	Normal
91	Normal	Normal	Normal
92	Normal	Normal	Normal
93	Normal	Normal	Normal
94	Normal	Normal	Normal
95	Normal	Normal	45/15
96	Normal	Normal	45/15
97	Normal	Normal	40/20
98	Normal	Normal	35/25
99	Normal	Normal	35/25
100	Normal	45/15	30/30
101	Normal	40/20	30/30
102	Normal	35/25	25/35
103	Normal	30/30	20/40
104	Normal	30/30	20/40
105	Normal	25/35	15/45
106	45/15	20/40	Caution [‡]
107	40/20	15/45	Caution [‡]
108	35/25	Caution [‡]	Caution [‡]
109	30/30	Caution [‡]	Caution [‡]
110	15/45	Caution [‡]	Caution [‡]
111	Caution [‡]	Caution [‡]	Caution [‡]
112	Caution [‡]	Caution [‡]	Caution [‡]

[†]With the assumption that workers are physically fit, well-rested, fully hydrated, under age 40, and have adequate water intake and that there is 30% RH and natural ventilation with perceptible air movement.

[‡]Note: Adjust the temperature reading as follows before going to the temperature column in the table:

Full sun (no clouds): Add 13°

Partly cloudy/overcast: Add 7°

No shadows visible/work is in the shade or at night: no adjustment

Per relative humidity:

10%: Subtract 8°

20%: Subtract 4°

30%: No adjustment

40%: Add 3°

50%: Add 6°

60%: Add 9°

[‡]High levels of heat stress; consider rescheduling activities.

Adapted from EPA [1993].

Source: Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments

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Appendix B Heat Advisory Notification Templates

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Subject: FORECASTED HEAT ADVISORY on [date]

The National Weather Service is forecasting a potential Heat Advisory for [city/office location] and will be experiencing high temperatures. Heat index values are expected to reach [Maximum Heat Index Values] on [date of weather event]. A follow up email will be sent if a Heat Advisory is issued by the National Weather Service.

Advise coworkers of the increased risk of heat related illness during this time and implement controls to reduce the likelihood of heat related injuries occurring. Please refer to the attached heat illness prevention fact sheets on proper steps to take to prevent injuries.

For further details about this heat alert or heat related illness prevention, please contact [Heat Stress Program Manager Contact email and phone number]. National Weather Service Advisory: [LINK]

Thank you,

Office of Environmental Health Safety

oehs@tulane.edu

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Subject: HEAT ADVISORY on [date]

The National Weather Service has issued a Heat Advisory for [city/office location] and will be experiencing high temperatures. Heat index values are expected to reach [Maximum Heat Index Values] on [date of weather event].

Advise coworkers of the increased risk of heat related illness during this time and implement controls to reduce the likelihood of heat related injuries occurring. Please refer to the attached heat illness prevention fact sheets on proper steps to take to prevent injuries.

For further details about this heat alert or heat related illness prevention, please contact [Heat Stress Program Manager Contact email and phone number]. National Weather Service Advisory: [LINK]

Thank you,

Office of Environmental Health Safety

oehs@tulane.edu

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Appendix C

High Risk Departments for Heat Related Injury

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High Risk Departments and Contacts		
Department	Parish	Contact
Architecture (Urban Build Project)	Orleans	Byron Mouton (bmouton@tulane.edu)
Art	Orleans	Allison Beonde (abeonde@tulane.edu) Molly LeBlanc (mleblan7@tulane.edu)
Athletics	Orleans	Amanda Robinson (arobinson7@tulane.edu)
Campus Services Downtown	Orleans	Jarmell McGill (jmcgill3@tulane.edu)
Campus Services Uptown	Orleans	Dani Galloway (dgalloway@tulane.edu) Adolfo Girau (agirau2@tulane.edu) Brian Lawrence (blawrenc@tulane.edu) William Ramirez (wramirez@tulane.edu) Guido Salvatierra (gsalvati@tulane.edu) William Mizell (wmizell1@tulane.edu)
Emergency Management	Orleans	Jason Ferguson (ferguson@tulane.edu) Donald Veals (donald@tulane.edu) Meredith Beers (meredith@tulane.edu) Scott Chauvin (schauvin1@tulane.edu) Tracey Braden (tbraden@tulane.edu)
Events	Orleans	Jennifer Thelen (jthelen1@tulane.edu) John Lange (jlange2@tulane.edu)
Hebert Center	Plaquemines	Guido Salvatierra (gsalvati@tulane.edu)
Risk Management	Orleans	Angela Sutton (asutton1@tulane.edu) Diane Surla (dsurla@tulane.edu)
TNPRC Campus Services	St. Tammany	Russell Stevens (rstevens3@tulane.edu)
TNPRC Occupational Health	Orleans	Marie Maywalt (OHTNPRC@tulane.edu)
TNPRC Operations	St. Tammany	Mark Alise (malise@tulane.edu)
TNPRC Veterinary Medicine	St. Tammany	Reafa Bickham (rbickham@tulane.edu) Jeffery Crosby (jcrosby@tulane.edu) John Clark (jclark18@tulane.edu) Denise O'Connell (doconnel@tulane.edu) Cathy Tsagournos (ctsagour@tulane.edu)

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Appendix D Heat Advisory Notification Procedure

Heat Illness Prevention Program

Standard Operating Procedure: Heat Advisory Notification Procedure

A. Scope

- a. This procedure documents the Heat Advisory Notification process conducted by the Office of Environmental Health and Safety.
- b. A Heat Advisory is a heat-related notification issued by the National Weather Service and local partners. May be issued as a Heat Advisory, Excessive Heat Watch, or Excessive Heat Warning

B. Procedure

- a. The heat illness prevention program manager or their delegate will monitor the National Weather Service (NWS) daily for potential heat advisory notifications or issued heat advisories. The following tools can be used to monitor the NWS for heat advisories:
 1. Tulane specific forecasts from Accuweather. (Ask emergency management to add to listserv)
 2. [National Weather Service New Orleans/Baton Rouge Website](#)
 3. [RSS feeds from the NWS](#)
 4. Local weather stations such as: [Fox 8](#), [WDSU](#), [WWLTV](#)
- b. If the NWS forecasts a potential heat advisory, the heat illness prevention program manager or their delegate will send an email to risk departments using the [Forecasted Heat Advisory Email Template](#) by 3:00 pm the day before the expected heat advisory.
 1. Update the Forecasted Heat Advisory Email Template for each Heat Advisory by changing the date, city/office location, expected temperatures, and link to the National Weather Service Advisory.
 2. Email the high-risk departmental contacts found in the table 1. Refer to section 4.0 in the Heat Illness Prevention Program for the criteria of a high-risk department.
 3. Attach [Heat Illness Prevention Fact Sheet and NIOSH Hydration Fact Sheet](#) to the Heat Advisory notification email.
 4. Send Forecasted Heat Advisory Email by 3:00 pm the day before the expected heat advisory.
 5. Follow up emails to departmental contacts will be sent on subsequent dates during a heat advisory.
 6. Review and update departmental contacts quarterly.
- c. If a heat advisory is issued, the heat illness prevention program manager or their delegate will notify high risk departments by email using the [Heat Advisory Email Template](#) by 10:00 am following the issuing of a heat advisory by the NWS.

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1. Update the Heat Advisory Email Template for each Heat Advisory by changing the date, city/office location, expected temperatures, and link to the National Weather Service Advisory.
2. Email the high-risk departmental contacts found in the table 1. Refer to section 4.0 in the Heat Illness Prevention Program for the criteria of a high-risk department.
3. If Heat Advisory is only issued for one parish and not the other, ie issued for St. Tammany and not Orleans, only send the heat advisory notification to the appropriate campus.
4. Attach [Heat Illness Prevention Fact Sheet and NIOSH Hydration Fact Sheet](#) to the Heat Advisory notification email.
5. Send heat advisory email by 10:00 am on the date the heat advisory is issued.
6. Follow up emails to departmental contacts will be sent on subsequent dates during a heat advisory.
7. Review and update departmental contacts quarterly.

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