NORTHWEST HEALTHCARE RESPONSE NETWORK

Extreme Heat Toolkit

Summary:

Heat exhaustion and heat stroke are both serious heat-related illnesses, but they differ in severity and symptoms. **Heat exhaustion** occurs due to excessive heat and dehydration, often following prolonged exposure or physical exertion. In contrast, **heat stroke** is a life-threatening emergency in which the body's temperature rises to 104°F (40°C) or higher and loses its ability to regulate heat.

Bottom Line:

Heat exhaustion is a warning sign — if not treated, it can progress to heat stroke, a life-threatening emergency. Recognize the symptoms early, act quickly to cool the person down, and seek medical help immediately if symptoms worsen or involve confusion, unconsciousness, or a very high body temperature. Prompt action can prevent serious complications or death.

Facilities should proactively plan and prepare for power loss by hardening infrastructure, conducting regular HVAC and generator maintenance, reviewing staffing ratios, and updating emergency operations plans and procedures. This includes planning for potential patient surges and ensuring staff safety during power outages.

Special Population Considerations:

- Older Adults (over 65 years)
- Infants and children
- Chronic health conditions, including people taking certain medications
- Houseless and low-income
- Athletes
- Outdoor workers
- People living with disabilities – physical, developmental, mental illness, etc.
- English as a second language (ESL)
- Geographic isolation and lack of caregiving support

Cascading and Concurrent Hazards considerations:

- Wildfire
- Poor Air Quality Index (AQI, smoke, pollution)
- Blackouts
- Transportation impacts
- Water loss or reduction
- Staffing ratios

Complicating environmental factors:

- Seasonal timeframe
- Nighttime temperatures
- Heat islands
- Humidity

General Recommendations for All Organizations

- HVAC-system/air conditioner vulnerabilities, have backup systems identified and/or contracts for additional cooling capabilities. Waiting until extreme heat is in the forecast will limit availability.
- Review MOUs with partners/businesses for patient movement and resources
- Evacuation planning in case of power loss or HVAC malfunction
- Supporting those most vulnerable (over 65 years, young children, co-morbidities, etc.)
- Appropriate measures to protect staff and patients exposed to heat, such as additional opportunities for hydration, cooling, breaks, and Review OSHA/CDC requirements/recommendations for occupational safety
    - https://www.osha.gov/heat-exposure/standards
- Developing heat-specific response plans
    - https://www.osha.gov/sites/default/files/2021-07/Model%20Heat%20Illness%20Prevention%20Plan.pdf
    - https://www.ihs.gov/california/sites/default/assets/DEHS%20Heat%20Toolkit/Tribal-Extreme-Heat-Response-Plan-Template-508c.docx
    - https://www.ehs.washington.edu/system/files/resources/outdoor-heat-exposure-plan-template.docx
- Integration of heat-specific response plans and actions to specific forecast thresholds. The NWSHeatRisk https://www.wpc.ncep.noaa.gov/heatrisk/ provides health- and region-specific metrics for threshold identification.

Hospital organizations should consider the following facility-level vulnerabilities, limitations, and strategies in their planning efforts:

- Environmental control mitigation measures
- Acute and protracted patient surges: heat-related illnesses, injuries (trauma, occupational injuries, drownings, etc.), and other illnesses exacerbated by heat stress

- Shortages of medical equipment and supplies due to patient surges, equipment malfunction, and/or transportation impacts
- Upstaffing when extreme heat events are anticipated

Pre-hospital EMS providers should consider the following vulnerabilities, limitations, and strategies in their planning efforts:

- Surge in 911 calls and significant emergency department patient drop-off delays
- Identify thresholds of concern; notify key response partners such as the local health jurisdiction (LHJ), emergency management, and NWHRN when threshold(s) are reached. Thresholds to consider:
    - Overall call volume and percentage of call volume related to heat-related illnesses
    - Delayed response times, turn-around times at hospitals, and additional transportation impacts

Outpatient healthcare organizations, such as ambulatory surgery centers, clinics, and dialysis centers, should consider the following:

- Thresholds for postponing elective procedures, testing/vaccinations, and/or other activities to reduce patient and staff exposure to hot temperatures
- Increase fluids for patients

Long-term Care facilities should consider the following:

- Carefully follow local public health extreme heat requirements and guidance
- Ensure air conditioner contracts are current and you have up-to-date emergency call list for rental of portable air conditioning units
- Obtain additional standalone air conditioning units if cooling systems are inadequate for prolonged elevated temperatures.
    - **Waiting until extreme heat is in the forecast will limit availability.**
- Environmental cooling – If unable to cool the whole facility create designated cooling rooms, increase shade (blinds and curtains closed), evaporative cooling (such as fans and wet towels/misting), and ample access to hydration via liquids and high-water content foods
- Identify thresholds for postponing outdoor activities to reduce patient and staff exposure
- Reaching out for support from LHJ and NWHRN at the first indication of needing to partially or fully evacuate a facility
- Have clear protocols for staff to monitor/assess residents and addressing heat stress
- Have an adequate supply of IV fluids on hand for dehydration emergencies

- Initiate and monitor Intake and Output on patients with risk factors/diagnoses and those whose intake is poor. Daily weights may also be appropriate
- Maintenance staff should regularly check and monitor building systems throughout heat event. Maintenance staff should document their efforts, findings, and interventions

Resources

All organizations should consider the following:

1. Forecast Resources

- **National Oceanic and Atmospheric Administration (NOAA):**
  - *Climate Prediction Center*: Short- to long-term temperature and precipitation outlooks
    - https://www.cpc.ncep.noaa.gov/
  - *NWS Experimental HeatRisk*: Identifies potential heat risks in the seven-day forecast
    - https://www.wpc.ncep.noaa.gov/heatrisk/
- **National Weather Service Forecast Office Seattle/Tacoma, WA:**
  - Five-day weather forecasts and regional hazard forecasts
    - https://www.weather.gov/sew/

---

2. Health Resources

Washington State Department of Health:

- Heat Stress – Washington Tracking Network (WTN)
  - https://doh.wa.gov/data-and-statistical-reports/washington-tracking-network-wtn/climate-change
- Hot Weather Safety
  - https://doh.wa.gov/emergencies/be-prepared-be-safe/severe-weather-and-natural-disasters/extreme-heat

Local Health Jurisdictions toolkits:

King County-

- https://kingcounty.gov/en/dept/dph/health-safety/safety-injury-prevention/emergency-preparedness/personal-preparedness/hot-weather/extreme-heat

Benton-Franklin-

- https://www.bfhd.wa.gov/programs_services/emergency_preparedness

Yakima-

- https://yakimacounty.us/3024/Summer-Health-and-Safety

Spokane-

- https://srhd.org/health-topics/environmental-health/extreme-heat

Snohomish-

- https://snohomish-county-public-safety-hub-snoco-gis.hub.arcgis.com/pages/cooling-centers

Tacoma-Pierce-

- https://tpchd.org/homes/emergency-preparedness/hot-weather/

National and International:

- **Centers for Disease Control and Prevention (CDC):**
    - https://www.cdc.gov/climate-health/php/resources/protect-yourself-from-the-dangers-of-extreme-heat.html
    - Heat Risks for Older Adults (65+)- https://www.cdc.gov/heat-health/risk-factors/heat-and-older-adults-aged-65.html
- **Environmental Protection Agency (EPA):**
    - https://www.epa.gov/heatislands/excessive-heat-events-guidebook
- **Occupational Safety and Health Administration (OSHA):**
    - https://www.osha.gov/heat-exposure/planning
- **Ready.gov:**
    - https://www.ready.gov/heat
- **Safe Kids:**
    - https://www.safekids.org/heatstroke