Recommended Public Health Actions and Measures during Heat Events

INTRODUCTION

Extreme heat is the deadliest weather-related hazard in the United States. Columbia Climate School estimates that 600 to 1,300 people die every year as a result of extreme heat[1]. In Washington state, 157 individuals died from heat during the summer of 2021, over 100 of which occurred during the heat wave, as known as the Heat Dome, in late June and early July. [2] The Heat Dome was the deadliest weather event in Washington state since 1910. [3] All heat-related deaths are preventable. The development of heat health recommendations is critical to inform actions based on the level of heat risk to reduce future heat related deaths and illnesses. Heat affects everyone differently. Some individuals may be more susceptible to heat-related illness due to factors such as their environment, level of activity, occupation, age, socioeconomic level, access to financial resources, or underlying health conditions – including the use of some medications that may reduce the body's ability to thermoregulate.[4]

PURPOSE

The purpose of the Heat Health Recommendations is to provide consistent considerations and recommendations to protect public health around extreme heat and prevent heat-related illnesses (HRIs) and deaths, especially for those communities who are disproportionately impacted by heat. **The Washington State Department of Health offers the following considerations and recommendations to support regional coordination and response actions across Washington state during an extreme heat event.** This guidance will help public safety and public health officials in Washington state respond to extreme heat events.

NOTES ON RECOMMENDATIONS

The following recommendations are intended for harm reduction purposes and are established to be protective of those most vulnerable to the health impacts of extreme heat. The following recommendations should not be construed in any way that expands or limits the administrative rules, regulations, or authorities of the Washington State Department of Health, or the requirements of Washington Administrative Code (WAC) 296-62-095 "Outdoor heat exposure" and the associated regulations under Revised Code of Washington (RCW) 49.17.010, 49.17.040, and 49.17.060.

The following guidance is offered to aid public health officials in their decision-making processes. However, action thresholds pertaining to extreme heat response are not static and additional factors must be considered, including:

- Individual sensitivities and levels of exposure, and
- Communities disproportionately impacted by heat, and
- Cooling capacity of the built environment (urban heat island effect, residential access to air conditioning, etc.)

HEATRISK VALUES AND NWS WATCHES, WARNINGS, & ADVISORIES

The NOAA National Weather Service (NWS) is the lead agency for the issuance of heat-related Watch, Warning, and/or Advisory (WWA) products issued prior to the onset of an extreme heat event and is the official source of weather forecasts and related products – including determination of localized HeatRisk Values. The four NWS Offices that serve Washington State include Pendleton, Portland, Seattle, and Spokane.

---

[1] How Can We Make Heat Waves Less Deadly? (columbia.edu)
[2] Heat Wave 2021 | Washington State Department of Health
[3] KUOW - 2021 heat wave is now the deadliest weather-related event in Washington history
[4] Climate and Health Technical Report Series: Technical Documentation on Exposure-Response (cdc.gov)

It is the responsibility of each jurisdiction or agency to monitor the NWS forecast and take preparatory actions based on NWS Heat Advisory, Excessive Heat Watch, and Excessive Heat Warning products (WWAs) that may be released prior to the onset of an extreme heat event. These NWS products are intended to provide jurisdictions, agencies, and divisions with lead time to prepare for when a heat event is likely to occur that poses an imminent hazard to human health.

NWS Category	Definition
Heat Advisory	A hazard is occurring, imminent, or very likely (>80% confidence). Indicates hot conditions that are not expected to reach warning thresholds during the forecast period but can cause impacts to life, infrastructure, commerce, travel, and emergency services. Typically indicates a widespread HeatRisk near the orange/red threshold.
Excessive Heat Watch	Issued when conditions reaching Excessive Heat Warning levels are possible (>50% confidence) in the coming days – up to 7 days in advance of the occurrence of a heat event.
Excessive Heat Warning	A hazard is occurring, imminent, or very likely (>80%+ confidence). Issued for very hot conditions that are likely to result in life-threatening heat-related illness or acute injury for those unable to escape the heat and significant impacts to healthcare services, infrastructure, commerce, travel, and emergency services. Typically, an event with widespread red or magenta HeatRisk will trigger an Excessive Heat Warning.

When any of the above WWA products are released by NWS, agencies and jurisdictions should use the **HeatRisk forecast and this guidance to inform the appropriate level of action to take associated with an upcoming event.**

The NWS HeatRisk forecast provides a quick view of the risk posed by heat over the upcoming seven days. HeatRisk is portrayed in a numeric (0-4) and color (green/yellow/orange/red/magenta) scale which is similar in approach to the Air Quality Index (AQI). Like the AQI, HeatRisk provides one value each day that indicates the approximate level of heat risk concern for any location, along with identifying groups who are most at risk. HeatRisk values are supplemental to official NWS heat watch/warning/advisory program and is meant to provide continuously available heat risk guidance for public safety and emergency management agencies and heat sensitive populations who need to take actions at levels that may be below current NWS heat product levels. Additionally, other tools such as Heat Indices and the use of Wet Bulb Globe Temperatures are not accurate or useful in Pacific Northwest locations due to the unique nature of this area's climes.

The NWS Experimental[5] HeatRisk values and forecast are tied to the Centers for Disease Control & Prevention (CDC) heat and health thresholds, are location specific, and considers factors including:

Daily maximum and minimum temperatures	Heat event duration
Local climatology	Time of year

[5] The term NWS Experimental HeatRisk: While this is labeled as experimental, the NWS in the western U.S. has been using HeatRisk operationally for several years now. As usage of HeatRisk increases throughout NWS partners, the service will no longer be deemed as experimental. The NWS is looking into a *national* heat strategy and exploring how to best utilize available forecast tools (HeatRisk, Heat Index, Wet-Bulb Globe Temperature, etc.). For more information: https://nws.weather.gov/products/PDD/PDD_ExpHeatRisk_2019.pdf

Guide for Recommended Public Health Actions for Extreme Heat

This guide is designed for regional and local public health and other official decision-making officials.

HeatRisk Category - Level - *Meaning*	Recommended Public Health Actions Check current and weather forecast at: National Forecast Maps (weather.gov)
Green **- 0 -** ***No Elevated Risk***	**Prior to extreme heat season:** • **Distribute** preparedness information to the public (e.g., guidance on buying air conditioning units, general maintenance on heat pumps and A/C, plan for power outages, how to stay hydrated, low-cost cooling methods, weatherization programs, etc.). • **Maintain** connections with appropriate office of the four NWS Offices (Pendleton, Portland, Seattle, and Spokane). **During extreme heat season:** • **Distribute** preparedness information to the public (i.e., guidance on buying air conditioning units, general maintenance on heat pumps and A/C, plan for power outages, how to stay hydrated, low-cost cooling methods, weatherization programs etc.). • **Maintain** connections with appropriate local office of the four NWS Offices (Pendleton, Portland, Seattle, Spokane). • **Stand-up** the Extreme Heat Group for situational awareness during the season. • **Monitor** extreme heat forecasts for Washington State at National Weather Service. • **Monitor** Heat Risk for Washington State using the NWS HeatRisk. • If NWS issues WWA products, review the Public Health Actions for Extreme Heat Guide.
Yellow **- 1 -** ***Low Risk for those extremely sensitive to heat, especially those without effective cooling and/or adequate hydration***	**During extreme heat season all the above recommendations, plus:** • **Continue** the above public health actions. • **Coordinate** with public health partners to follow recommended public health actions. • **Distribute** health information to the public, including steps to take regarding health advisories and HeatRisk categories. ◦ Identify and focus outreach efforts for sensitive groups. • **Follow** the DOH Creating Safer Air Movement for Cooling Considerations for COVID-19. • **Follow** the CDC Heat for Infants and Children guidance. • **Follow** the CDC Athletes and Heat guidance. • **Follow** the CDC Older Adults and Heat guidance. • **Follow** the CDC Heat and Chronic Medical Conditions guidance. • **Share** other safety measures through the DOH Hot Weather Safety page. • **Consider** sharing the WA Department of Labor and Industries' Outdoor Heat Exposure Rules for outdoor workers.

Orange **- 2 -** ***Moderate Risk for those who are sensitive to heat, especially those without effective cooling and/or adequate hydration***	**Above recommendations, plus:** **INITIATE EARLY WARNING, PUBLIC MESSAGING, AND RESPONSE ACTIVITIES** • **Share** information about available locations where the general population can go to access air conditioning or cooling features such as water recreation facilities or other public places. • **Share** 2-1-1 for the public to access information about available cooling center locations in specific areas and general personal safety measures to stay cool and safe. • **Disseminate** key public health heat safety messaging and risk communications to at-risk populations AND organizations that advocate for at-risk populations, including those experiencing homelessness, older adults, children, outdoor workers, and individuals with chronic conditions, disabilities, socially isolated, and those with access and functional needs. • **Consider** limiting strenuous outdoor activities during the hottest period of the day. • **Consider** cancelation and/or rescheduling of outdoor children's activities, day-camps, athletic practice, and games taking place during the hottest period of the day or consider moving them indoors where temperatures are cooler. • **Consider** distribution of water and other cooling supplies for at-risk communities and populations. • **Consider** activation of daytime cooling centers for unsheltered individuals. • **Consider** undertaking preparation activities required to meet recommendations of higher HeatRisk levels, if forecast indicates increase in risk and temperatures. • **Monitor** NWS HeatRisk forecast and alerts until forecast conditions become more favorable (e.g., HeatRisk Value of 1 - yellow - or lower).
Red **- 3 -** ***High Risk for much of the population, especially those who are heat sensitive and those without effective cooling and/or adequate hydration***	**Above recommendations, plus:** **RECOMMEND COOLING CENTER ACTIVATIONS & REDUCTION IN OUTDOOR ACTIVITIES** • **Recommend** everyone take steps to reduce exposure (limit time in uncooled areas, avoid strenuous outdoor activity, and follow tips for cooling indoor air). • **Continue outreach** efforts to reach at-risk populations with risk communications, cooling supplies, and water resources. • **Activate** of daytime cooling centers for unsheltered individuals. • **Activate** of daytime cooling centers for general population. • **Recommend** temporary suspension of strenuous outdoor activities during hottest times of the day. • **Recommend** cancelation and/or rescheduling of outdoor children's activities, day-camps, athletic practice, and games. • **Recommend** conducting wellness checks on elders and people living with disabilities to ensure access to air conditioning or cooling centers. • **Consider** expanding hours of operation for cooling centers for unsheltered individuals and those whose residences are retaining heat to accommodate overnight use. • If school is in session, consider capabilities of schools to maintain cooler indoor air temperatures: **Local public health recommends closure if indoor temperatures cannot be maintained reasonably free of excessive heat (WAC § 246-366-080).**
Magenta **- 4 -** ***Very High Risk for entire population due to long duration heat, with little to no relief overnight***	**Above recommendations, plus:** **RECOMMEND CANCELATION OUTDOOR PUBLIC EVENTS AND ACTIVITIES** • **Recommend** cancelation of outdoor activities and events during hottest times of the day. • **Recommend** expanding cooling center hours of operation to accommodate overnight use. • For an extended duration of heat, **consider** recommending that sensitive groups voluntarily relocate to an unimpacted area, if capable. • **Strongly recommend** everyone take steps to reduce exposure to heat.

SUPPLEMENTAL INFORMATION:

This is currently a working document. It is consistently updated when new information becomes available. Please check back for the most up-to-date information.

To ensure clarity and limitations: NWS Advisories, Watches, and Warnings are based on meteorological probabilities while assignment of HeatRisk Categories are the summation of heath and health thresholds, specific locations, and considers additional factors (listed on page 2 of this document). As such it is difficult to quantify what potential HeatRisk categories a specific area may be facing.

Additional Resources for creating a common literacy surrounding HeatRisk:

- https://www.wrh.noaa.gov/wrh/heatrisk/
- https://nws.weather.gov/products/PDD/PDD_ExpHeatRisk_2019.pdf
- https://www.wrh.noaa.gov/wrh/heatrisk/pdf/HeatRisk_More_Info_Web.pdf

Highly Recommended:

- National Environmental Health Association Conference: Minutes 4:50 - 13:10
  - NWS provides a very thorough explanation on what HeatRisk is and how it is connected to WWA products.
  - https://youtu.be/0oNoDut4h-Y?t=290