Working together to improve health care quality, outcomes, and affordability in Washington State.

Heat and Wildfire Smoke Toolkit for Healthcare Professionals

Published August 2025

Introduction

Extreme heat and wildfire smoke, exacerbated by climate change, pose mounting threats to public health, ecosystems, and emergency response systems. Rising temperatures and increasingly severe heat waves contribute to heat-related illnesses, strain emergency resources, and drive excess mortality. Simultaneously, climate-driven wildfires worsen air pollution, heightening respiratory and cardiovascular risks. Vulnerable groups, such as low-income communities, outdoor workers, and the elderly, bear the greatest burden of these overlapping challenges.

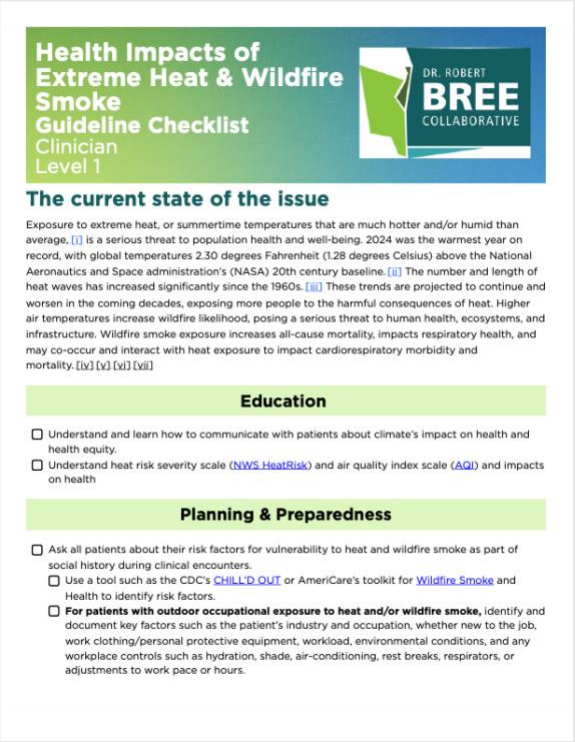
As these climate-related threats grow, healthcare professionals, including clinicians, medical staff, and health plan providers—require enhanced education and tools to better support their patients and communities. To address this need, this toolkit offers targeted resources and information on extreme heat and wildfire smoke. It is designed to equip healthcare professionals with the knowledge and strategies they need to prepare for these events, care for affected patients, and guide individuals in building resilience before and during extreme heat or wildfire incidents. All materials found within the toolkit are openly available for healthcare professionals to use for their own education or to disseminate to patients. The primary target audience for this toolkit is primary care providers, though the toolkit may be useful for a range of care team members or healthcare professionals.

This toolkit was created based on the findings of the Bree Report on Extreme Heat and Wildfire Smoke.[1]

Quick Reference Checklists

Use these checklists from the Robert Bree Collaborative as guidelines for the steps laid out in this toolkit.[2]

Level 1



Health Impacts of Extreme Heat & Wildfire Smoke
Guideline Checklist
Clinician
Level 1

DR. ROBERT BREE COLLABORATIVE

The current state of the issue

Exposure to extreme heat, or summertime temperatures that are much hotter and/or humid than average, [i] is a serious threat to population health and well-being. 2024 was the warmest year on record, with global temperatures 2.30 degrees Fahrenheit (1.28 degrees Celsius) above the National Aeronautics and Space administration's (NASA) 20th century baseline. [ii] The number and length of heat waves has increased significantly since the 1960s. [iii] These trends are projected to continue and worsen in the coming decades, exposing more people to the harmful consequences of heat. Higher air temperatures increase wildfire likelihood, posing a serious threat to human health, ecosystems, and infrastructure. Wildfire smoke exposure increases all-cause mortality, impacts respiratory health, and may co-occur and interact with heat exposure to impact cardiorespiratory morbidity and mortality. [iv] [v] [vi] [vii]

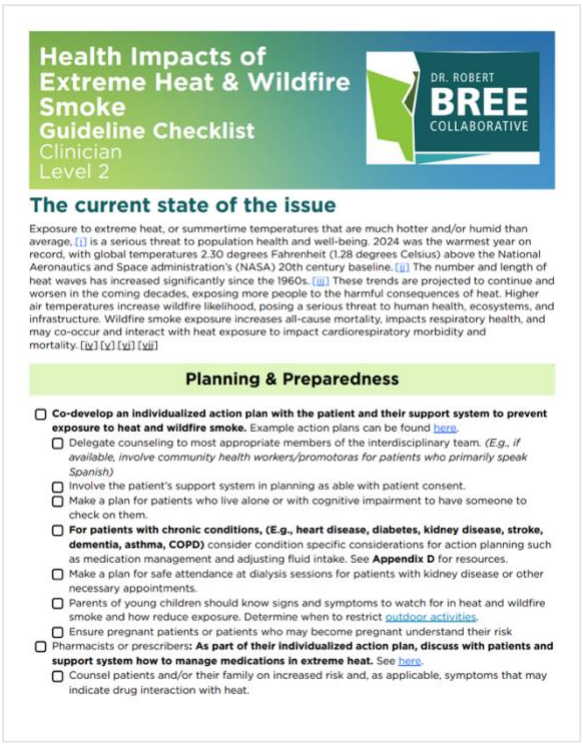
Education

- ☐ Understand and learn how to communicate with patients about climate's impact on health and health equity.
- ☐ Understand heat risk severity scale (NWS HeatRisk) and air quality index scale (AQI) and impacts on health

Planning & Preparedness

- ☐ Ask all patients about their risk factors for vulnerability to heat and wildfire smoke as part of social history during clinical encounters.
  - ☐ Use a tool such as the CDC's CHILL'D OUT or AmeriCare's toolkit for Wildfire Smoke and Health to identify risk factors.
  - ☐ **For patients with outdoor occupational exposure to heat and/or wildfire smoke,** identify and document key factors such as the patient's industry and occupation, whether new to the job, work clothing/personal protective equipment, workload, environmental conditions, and any workplace controls such as hydration, shade, air-conditioning, rest breaks, respirators, or adjustments to work pace or hours.

Level 2



Health Impacts of Extreme Heat & Wildfire Smoke
Guideline Checklist
Clinician
Level 2

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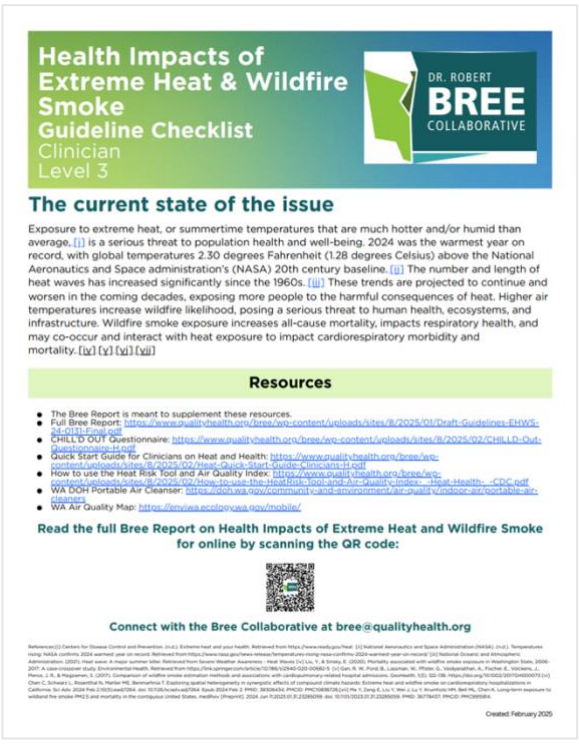
Planning & Preparedness

- ☐ **Co-develop an individualized action plan with the patient and their support system to prevent exposure to heat and wildfire smoke.** Example action plans can be found here.
  - ☐ Delegate counseling to most appropriate members of the interdisciplinary team. *(E.g., if available, involve community health workers/promotoras for patients who primarily speak Spanish)*
  - ☐ Involve the patient's support system in planning as able with patient consent.
  - ☐ Make a plan for patients who live alone or with cognitive impairment to have someone to check on them.
  - ☐ **For patients with chronic conditions, (E.g., heart disease, diabetes, kidney disease, stroke, dementia, asthma, COPD)** consider condition specific considerations for action planning such as medication management and adjusting fluid intake. See **Appendix D** for resources.
  - ☐ Make a plan for safe attendance at dialysis sessions for patients with kidney disease or other necessary appointments.
  - ☐ Parents of young children should know signs and symptoms to watch for in heat and wildfire smoke and how reduce exposure. Determine when to restrict outdoor activities.
  - ☐ Ensure pregnant patients or patients who may become pregnant understand their risk
- ☐ Pharmacists or prescribers**: As part of their individualized action plan, discuss with patients and support system how to manage medications in extreme heat.** See here.
  - ☐ Counsel patients and/or their family on increased risk and, as applicable, symptoms that may indicate drug interaction with heat.

Level 3



Health Impacts of Extreme Heat & Wildfire Smoke
Guideline Checklist
Clinician
Level 3

DR. ROBERT BREE COLLABORATIVE

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Resources

- The Bree Report is meant to supplement these resources.
- Full Bree Report: https://www.qualityhealth.org/bree/wp-content/uploads/sites/8/2025/01/Draft-Guidelines-EHWS-24-013-Final.pdf
- CHILL'D OUT Questionnaire: https://www.qualityhealth.org/bree/wp-content/uploads/sites/8/2025/02/CHILLD-Out-Questionnaire-H.pdf
- Quick Start Guide for Clinicians on Heat and Health: https://www.qualityhealth.org/bree/wp-content/uploads/sites/8/2025/02/Heat-Quick-Start-Guide-Clinicians-H.pdf
- How to use the Heat Risk Tool and Air Quality Index: https://www.qualityhealth.org/bree/wp-content/uploads/sites/8/2025/02/How-to-use-the-HeatRisk-tool-and-Air-Quality-Index-_-Heat-Health-_-CDC.pdf
- WA DOH Portable Air Cleanser: https://doh.wa.gov/community-and-environment/air-quality/indoor-air/portable-air-cleaners
- WA Air Quality Map: https://enviwa.ecology.wa.gov/mobile/

Read the full Bree Report on Health Impacts of Extreme Heat and Wildfire Smoke for online by scanning the QR code:

Connect with the Bree Collaborative at bree@qualityhealth.org

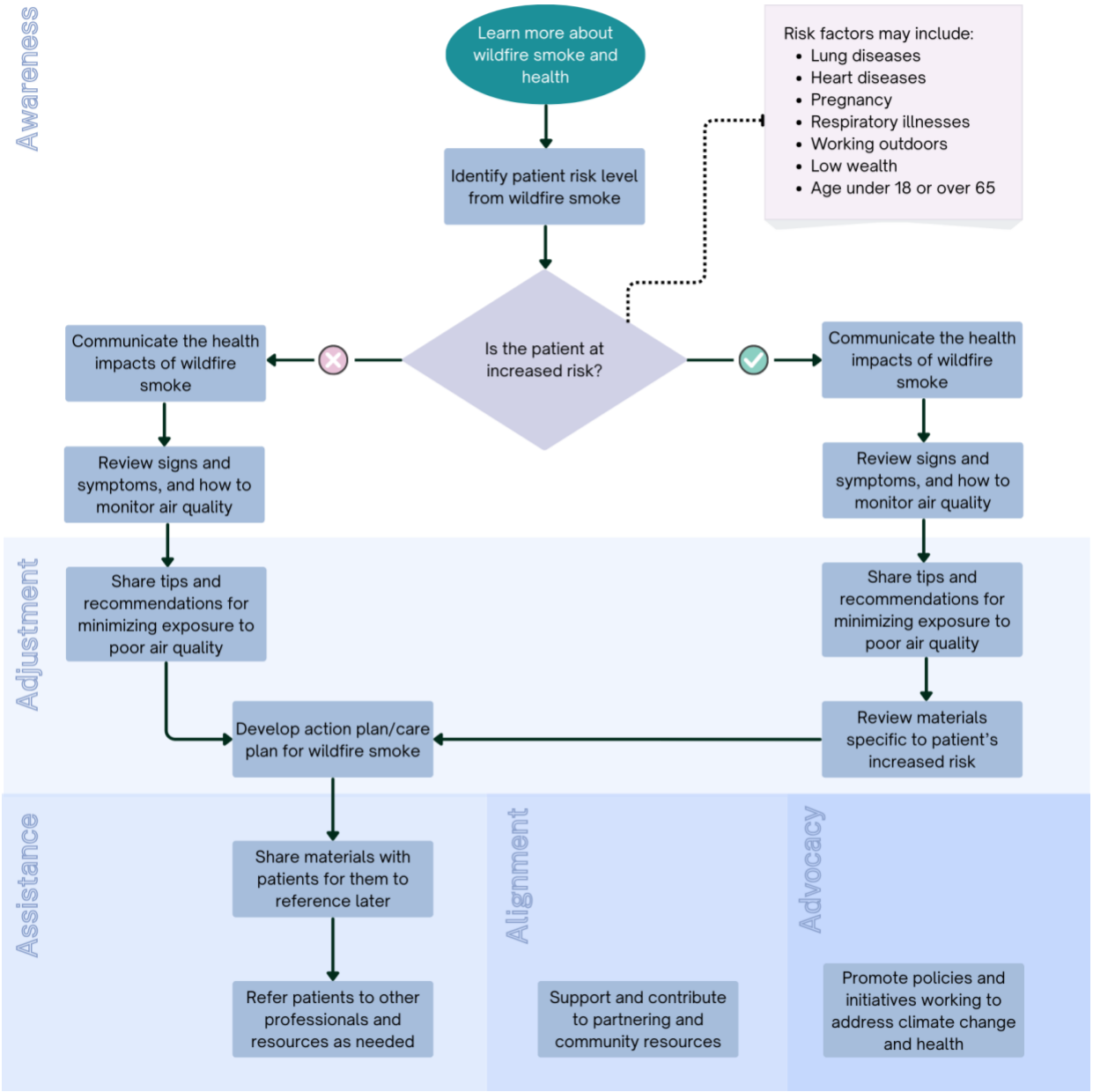
References[i] Centers for Disease Control and Prevention. (n.d.). Extreme heat and your health. Retrieved from https://www.ready.gov/heat. [ii] National Aeronautics and Space Administration (NASA). (n.d.). Temperatures rising: NASA confirms 2024 warmest year on record. Retrieved from https://www.nasa.gov/news-release/temperatures-rising-nasa-confirms-2024-warmest-year-on-record/ [iii] National Oceanic and Atmospheric Administration. (2021). Heat wave: A major summer killer. Retrieved from Severe Weather Awareness - Heat Waves [iv] Liu, Y., & Sinsky, E. (2020). Mortality associated with wildfire smoke exposure in Washington State, 2006-2017. A case-crossover study. Environmental Health. Retrieved from https://link.springer.com/article/10.1186/s12940-020-00682-5 [v] Gan, R. W., Ford, B., Lassman, W., Pfister, G., Vaidyanathan, A., Fischer, E., Volckens, J., Pierce, J. R., & Magzamen, S. (2017). Comparison of wildfire smoke estimation methods and associations with cardiopulmonary-related hospital admissions. GeoHealth, 1(2), 122–136. https://doi.org/10.1002/2017GH000079 [vi] Chen C, Schwarz L, Rosenthal N, Harlan ME, Bemmamina T. Exploring spatial heterogeneity in synergistic effects of compound climate hazards: Extreme heat and wildfire smoke on cardiorespiratory hospitalizations in California. Sci Adv. 2024 Feb 2;10(5):eadl0364. doi: 10.1126/sciadv.adl0364. Epub 2024 Feb 2. PMID: 38306434; PMCID: PMC10836726 [vii] Ma Y, Zang E, Liu Y, Wei J, Lu Y, Krumholz HM, Bell ML, Chen K. Long-term exposure to wildland fire smoke PM2.5 and mortality in the contiguous United States. medRxiv [Preprint]. 2024 Jun 11:2023.01.31.23285059. doi: 10.1101/2023.01.31.23285059. PMID: 36778457; PMCID: PMC9917854.

Created February 2025

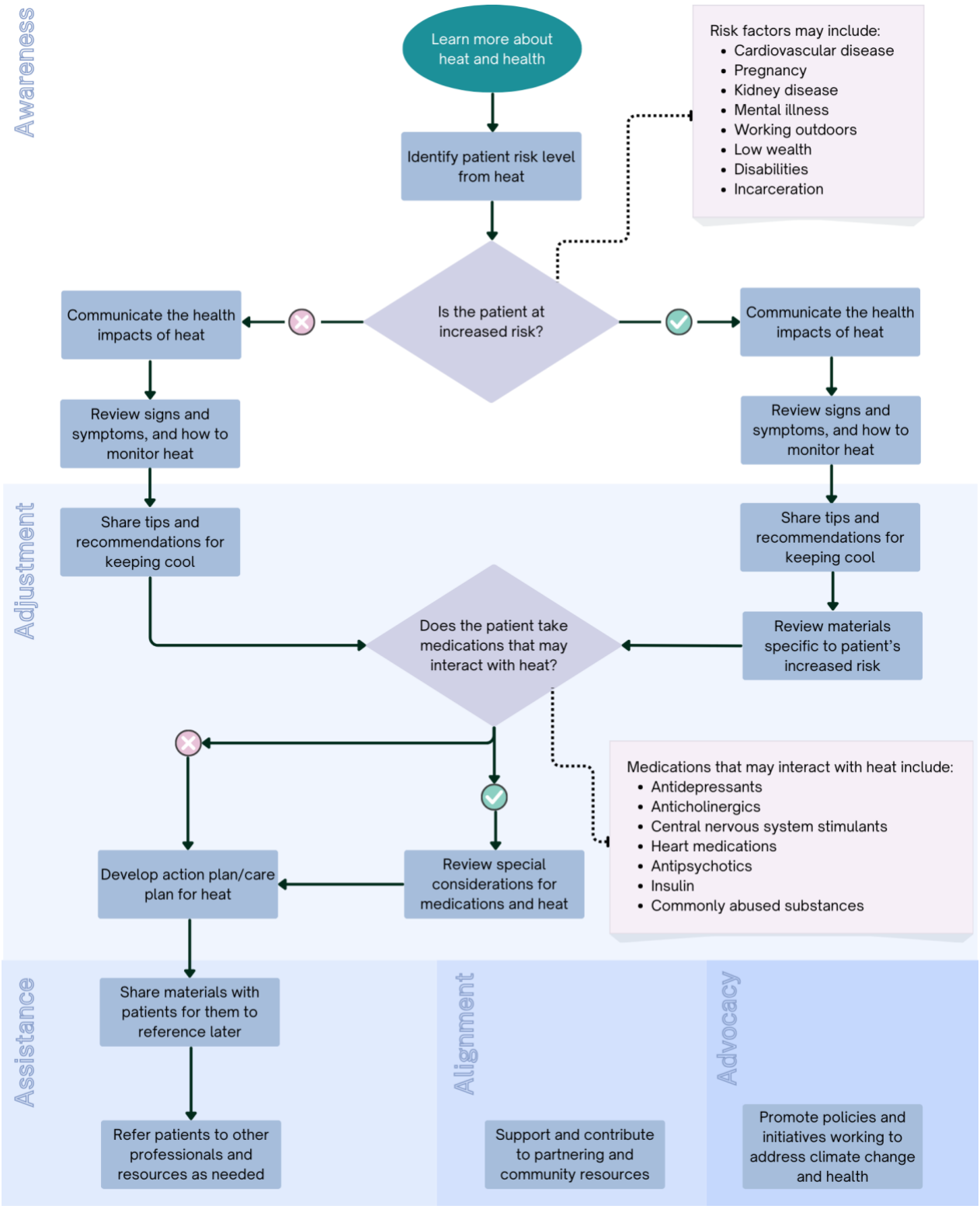
Using The Toolkit: Start Here

The flowcharts on the next two pages illustrate the order in which materials are presented throughout this toolkit. It also provides an example workflow for addressing wildfire smoke and health or heat and health with patients. The items in the flowcharts contain links to the relevant sections of the toolkit, which contain relevant materials. The actions in the flowchart are organized into five categories, reflecting the "Five Health Care Sector Activities to Better Integrate Social Care," developed by the National Academies of Sciences, Engineering, and Medicine.[3] Throughout the toolkit, most included preview images contain hyperlinks to openly available PDFs or other documents that can be saved or printed to have on hand.

Wildfire Smoke Workflow



Extreme Heat Workflow



Additional Resource: [CDC Quick Start Guide for Clinicians on Heat and Health][4]

Educational Resources for Healthcare Professionals

Health Impact of Heat and Wildfire Smoke

Exposure to extreme heat, or summertime temperatures that are much hotter and/or humid than average,[5] is a serious threat to population health and well-being. 2024 was the warmest year on record, with global temperatures 2.30 degrees Fahrenheit (1.28 degrees Celsius) above the National Aeronautics and Space administration's (NASA) 20th century baseline.[6] The number and length of heat waves has increased significantly since the 1960s.[7] These trends are projected to continue and worsen in the coming decades, exposing more people to the harmful consequences of heat. Higher air temperatures increase wildfire likelihood, posing a serious threat to human health, ecosystems, and infrastructure. Wildfire smoke exposure increases all-cause mortality, impacts respiratory health, and may co-occur and interact with heat exposure to impact cardiorespiratory morbidity and mortality.[8–11]

For more information:

- The National Academy of Medicine has developed a range of resources regarding Climate Change and Human Health that may be helpful to healthcare professionals.[12]
- The AmeriCares and Harvard Chan C-CHANGE toolkit contains an overview of Wildfires and Health[13]. A Spanish version is also available.

Populations Most At-Risk From Heat and Wildfire Smoke

Heat has a greater impact on some populations. This is in part determined by a person's exposure, which varies depending living in an urban vs rural area, housing quality, access to cooling, air pollution; sensitivity to heat stress, which depends on age, medical conditions, medication use, hydration; and a person's adaptive capacity, a person's ability of people to cope with and recover from heat stress influenced by social drivers of health such as social support, income, education, housing, transportation and access to health care. For workers and athletes, heat stress is a combination of environmental exposure, non-breathable clothing or personal protective equipment that inhibits heat loss, and metabolic heat generation from physical activity. More vulnerable population categories include:

- **People disproportionately exposed to heat, sensitive to heat or with limited adaptive capacity (*people experiencing homelessness, people with chronic medical conditions, people with disabilities, people who are incarcerated, people with low income, people who rent, marginalized communities, outdoor workers)***
- **People physically active outdoors or in hot indoor spaces (*athletes, outdoor and some indoor workers, emergency responders*)**
- **Ages and life stages (*infants and children, young adults, pregnant people, older adults*)**

For more information, review the findings of the Bree Collaborative Heat and Wildfire Smoke Report and Guidelines 2024.[1]

Special Considerations for Health Conditions

Asthma - Children & Teens

- The CDC provides a Clinical Overview of Heat and Children and Teens with Asthma.[14]

Cardiovascular Disease

- The CDC provides a Clinical Overview of Heat and Cardiovascular Disease.[15]

Pregnancy

- The CDC provides information regarding Wildfire Smoke and Pregnancy.[16]
- The CDC provides information regarding Heat and Pregnancy.[17]

Kidney Disease

- The Clinical Kidney Journal published Ten tips on how to care for your CKD patients in episodes of extreme heat in 2024.[18]
- The American Journal of Kidney Disease published an editorial on Climate Change, Heat-Related Acute Kidney Disease, and the Need for Action in 2023.[19]

Mental Illness

- The Climate Psychiatry Alliance has provided an Extreme Heat and Mental Illness Tool Kit for Mental Health Care Providers.[20]

Medication Considerations

Some medications may put patients at greater risk of negative health effects from extreme heat. As part of their individualized action plan, discuss with patients and support system how to manage medications in extreme heat. The CDC provides Heat and Medications Guidance for Clinicians.[21]

- Counsel patients and/or their family on increased risk and, as applicable, symptoms that may indicate drug interaction with heat.
- Consider adjustments to doses for medications most likely to interact with heat, especially for older patients taking multiple medications, patients on diuretics and patients on psychiatric medications.
- If taking medications that may lead to dehydration or affect electrolyte balance, consider evaluation of baseline hydration status, discuss monitoring at home (blood pressure, weight, hydration) and adjustment to fluid restriction or intake during periods of extreme heat.
- Counsel patients on storing heat-sensitive medications properly and planning for how heat waves or other climate events may impact storage of medications, like insulin.

The AmeriCares and Harvard Chan C-CHANGE Medications and Heat tool for providers may help with the identification of medications that could increase the risk of patient harm during extreme heat events.[13] A Spanish version is also provided.

Medications that may interact with heat exposure are shown here.[22]

Further Resources

- The WADOH Wildfire Smoke Toolkit provides technical guidance and risk communication resources relating to wildfire smoke and health.[23] Resources are available in multiple languages.
- The Harvard Chan Center for Climate, Health, and the Global Environment (C-CHANGE) provides Climate and Health Resources to keep healthcare professionals and others informed and engaged.[24]
- AmeriCares and Harvard Chan C-CHANGE created guidelines for Helping Patients Establish a Wildfire/Wildfire Smoke Action Plan.[13] A Spanish version of the document is also available.
- The AmeriCares and Harvard Chan C-CHANGE Heat and Health tip sheet provides an overview on how heat impacts health and how providers can help patients prepare.[13] A Spanish version is also available.
- AmeriCares and Harvard Chan C-CHANGE created guidelines for Helping Patients Establish a Heat Action Plan.[13] A Spanish version is also available.
- The CDC provides Clinical Guidance for Heat Health, which includes various resources for providers that are included elsewhere in this toolkit.[25]
- The EPA offers a Wildfire Smoke and Your Patients' Health course for healthcare professionals to "learn about the health effects associated with wildfire smoke and actions for patients to take before and during a wildfire to reduce exposure."[26]
- UCSF and the Western States Pediatric Environmental Health Specialty Units have created a free multi-media eBook, A Story of Health, that illustrates how environments interact with genes to influence health, including a story on the health effects of wildfires.[27]
- ClimateRX provides healthcare providers and health professionals with tools, training, and resources to protect patients' health in the context of climate change.[28]
- You can sign up for the Washington Health Alert Network to help stay up to date on health alerts that may include extreme heat and wildfire smoke alerts.[29]
- Ready.gov provides preparedness materials that may be helpful to healthcare professionals and their patients, for disasters including extreme heat and wildfires.[30]

During Patient Care: Wildfire Smoke

Wildfire Smoke Resources for Healthcare Professionals

Identifying Patient Wildfire Smoke Risk

Ask all patients about their risk factors for vulnerability to wildfire smoke as part of social history during clinical encounters. For patients with outdoor occupational exposure to wildfire smoke, identify and document key factors such as the patient's industry and occupation, whether new to the job, work clothing/personal protective equipment, workload, environmental conditions, and any workplace controls such as hydration, shade, air-conditioning, rest breaks, respirators, or adjustments to work pace or hours. The AmeriCares and Harvard Chan C-CHANGE Toolkit for Wildfire Smoke and Health provides the following table of populations that are at increased risk from wildfire smoke[13]:

Populations at increased risk from wildfire smoke exposure

Condition/individual with greater sensitivity to smoke exposure	Potential health effects from wildfire smoke exposure
Asthma, COPD, and other chronic respiratory diseases	Respiratory symptoms including breathing difficulties (e.g., coughing, wheezing, and chest tightness). Greater medication usage, emergency department visits, and hospital admissions.[6,7,8]
Cardiovascular disease (CVD)	Ischemic events; worsening of heart failure; or arrhythmias. Excess emergency department visits, hospital admissions, and even death from CVD.[9,10]
Children	Coughing, wheezing, difficulty breathing, chest tightness, decreased lung function, pneumonia.[11]
Chronic kidney disease	Excess same-day mortality for dialysis patients.[12] Decreased renal function and progression to end-stage renal disease.[13]
Low wealth individuals	Greater smoke exposure as well as lesser access to exposure reducing measures (e.g., air filtration) and healthcare.[14]
Older adults	Increased vulnerability to smoke effects, and therefore higher rates of healthcare utilization and mortality, due to higher prevalence of chronic medical conditions.[6]
Outdoor workers	Increased vulnerability to smoke effects due to extended periods of time exposed to high concentrations of wildfire smoke, possibly without adequate protection.
Pregnancy	Heat exposure increases risk of poor birth outcomes including low birth weight and preterm birth.[15,16]

Adapted from https://www.epa.gov/wildfire-smoke-course/which-populations-experience-greater-risks-adverse-health-effects-resulting

Racial inequities have been documented in wildfire-$PM_{2.5}$ exposure and health effects. A study of 5 million Medicare enrollees in the western U.S. found that Black American enrollees were more likely to be exposed to high levels of wildfire-$PM_{2.5}$ and had higher rates of hospital admission.[13,16] These discrepancies may result from variability in health status, occupational exposures, indoor air quality, and access to other protective measures.

Communicating the Health Impact of Wildfire Smoke

Discuss how wildfire smoke can be harmful to health using plain language.[31] Provide anticipatory guidance and specific guidance related to their specific health conditions and risk factors. The AmeriCares and Harvard Chan C-CHANGE Toolkit for Wildfire Smoke and Health provides a Wildfires and Health overview for providers.[13]

- Explain that poor air quality can exacerbate risk from heat, and vice versa.

More information on communicating with patients about wildfire smoke can be found in the WHO Communicating on climate change and health toolkit,[32] the AHRQ Health Literacy Universal Precautions Toolkit,[31] and the NAM Communicating About Climate Change & Health site.[33]

Wildfire Smoke Resources for Patients

All materials in this section can be shared with patients during and after visits as needed, as handouts or attached to their after-visit summary, and are well-suited to serve as references for both healthcare professionals and patients. Access the linked full documents by clicking on the preview images.

Wildfire Smoke Exposure Signs and Symptoms

The WA DOH provides the following flyer for symptoms of wildfire smoke. Versions of the flyer in other languages can be found here.[23]

Wildfire Smoke: Know the Symptoms

Exposure to smoke from fires can cause or worsen health problems. Knowing the symptoms can help protect you and others.

If you have a health condition, smoke from fires may worsen your symptoms. When smoke levels are moderate to high, healthy people can also have symptoms. These can range from minor irritations to life-threating complications, including:

sore throat

headaches

burning eyes

coughing

wheezing

chest pains

shortness of breath or trouble breathing

Health conditions can include:

- Asthma, COPD, and other lung diseases
- Heart diseases
- Diabetes
- Stroke survivors
- Respiratory infections (such as cold, flu, COVID-19, RSV, pneumonia, or bronchitis)

If you have minor symptoms like sore throat or headaches, take steps to protect your health. Limit your time spent outdoors, avoid high intensity activities, and keep indoor air clean.

Call 911 if you have have trouble breathing or chest pains.

For more information about the health impacts of wildfire, visit

DOH.WA.GOV/SMOKEFROMFIRES

Washington State Department of HEALTH

DOH 334-423 June 2025 CS

To request this document in another format, call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email doh.information@doh.wa.gov.

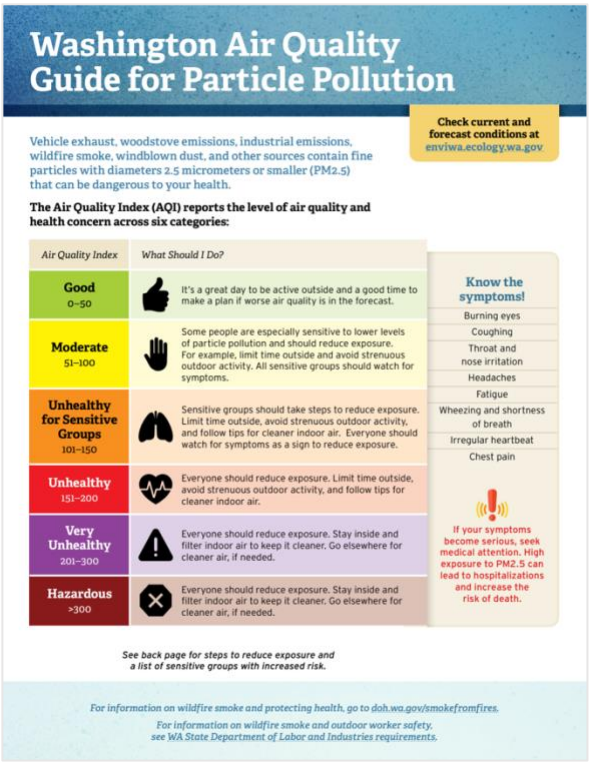
Monitoring Wildfire Smoke

Show patients how to use tools such as AirNow to monitor wildfire smoke.[34]

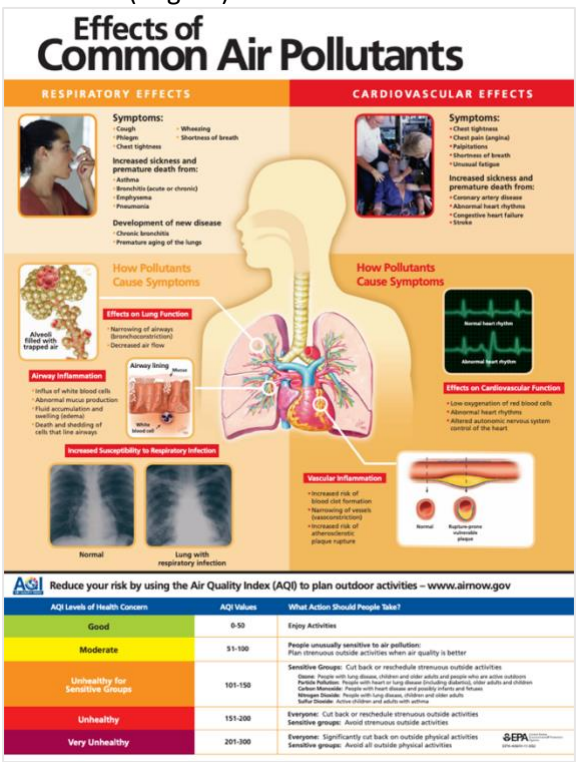
For Washington State, the Washington Air Quality Map shows the current air quality across the state,[35] and the Washington Smoke Blog provides a fire and smoke map and other information.[36]

These handouts may be helpful for patients to reference to understand how to interpret and respond to air quality status.

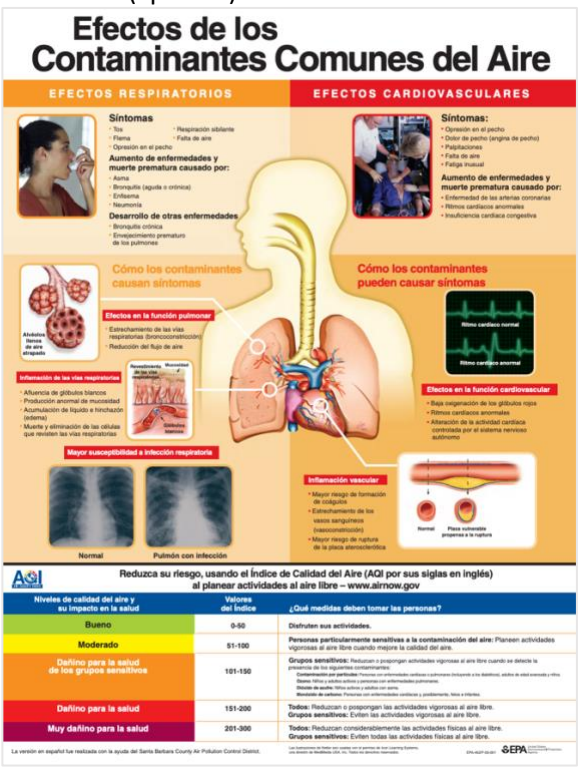
WA DOH Air Quality Guide (English)



EPA handout on the Effects of Common Air Pollutants (English)

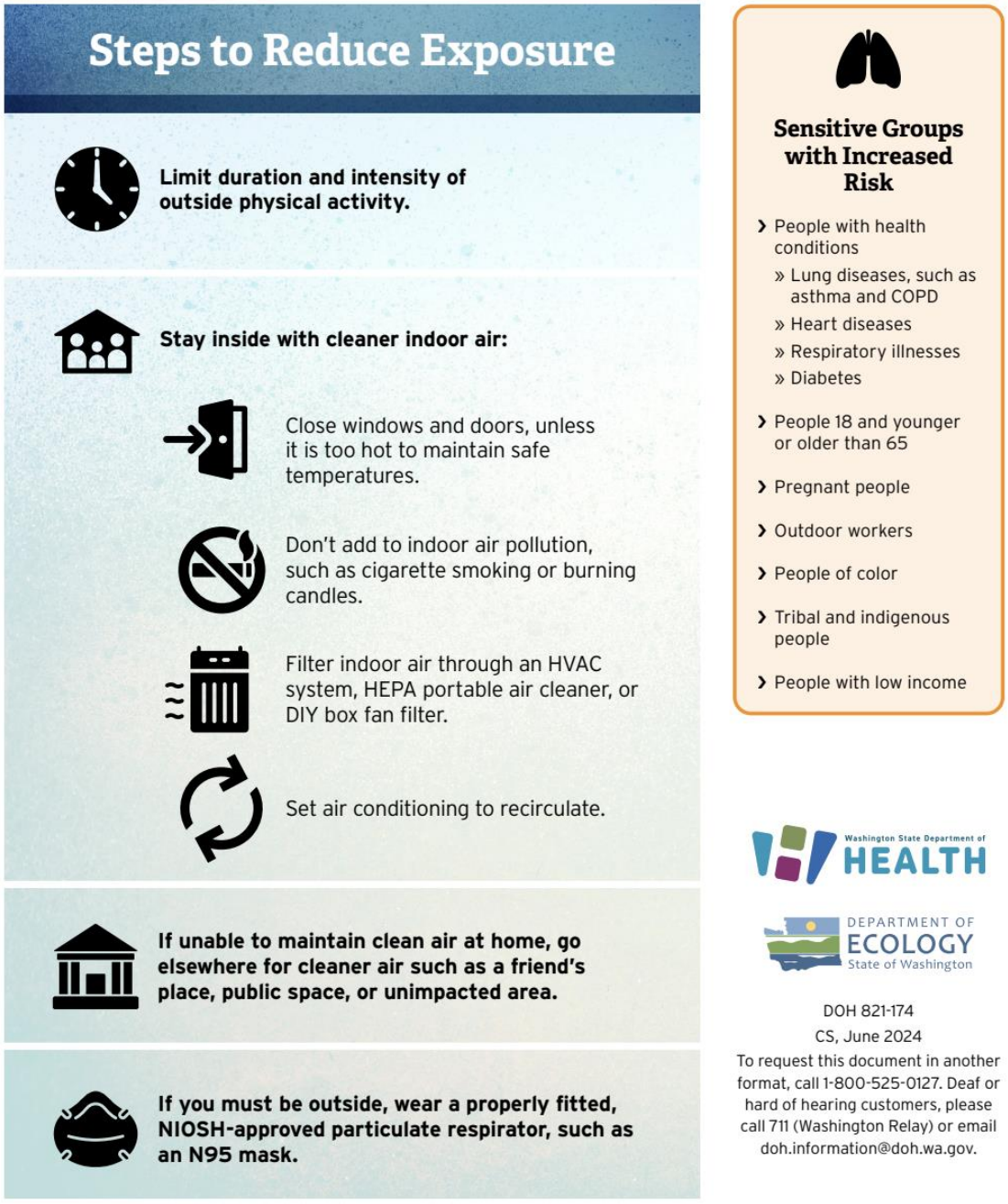


EPA handout on the Effects of Common Air Pollutants (Spanish)



Preventing Wildfire Smoke Exposure

The Washington Department of Health provides this Air Quality Guide for Particle Pollution.[23]



For information on wildfire smoke and protecting health, go to doh.wa.gov/smokefromfires.

For information on wildfire smoke and outdoor worker safety, see WA State Department of Labor and Industries requirements.

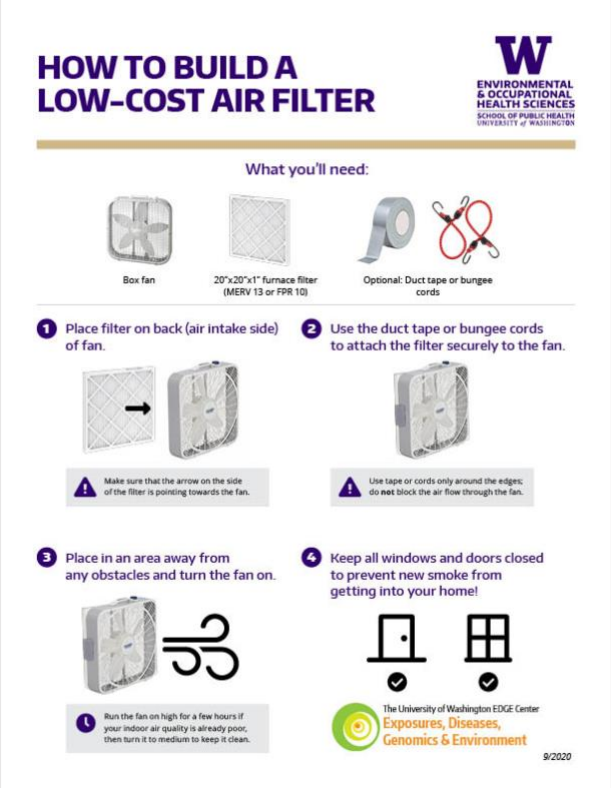
Air Filter Information

The Washington Department of Health provides information and guidance on selecting and using Portable Air Cleaners to improve indoor air quality.[37]

AmeriCares and Harvard Chan C-CHANGE provide a guide to air purifiers and DIY air cleaners.[13] A Spanish version is also available.

The University of Washington EDGE Center developed the following fliers with information on how to build a low-cost air filter.[38] Chelan-Douglas Health District also has videos in both English and Spanish that provide these instructions and other tips.

English

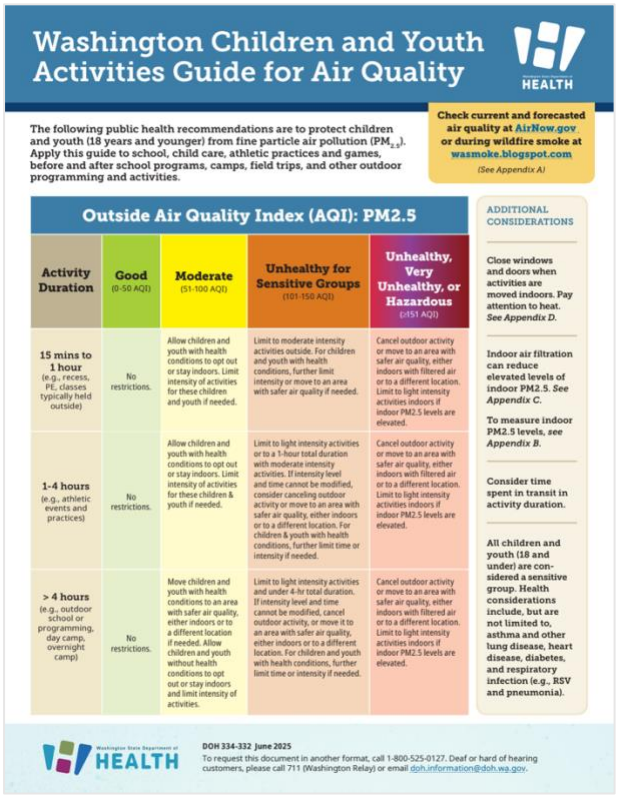


Spanish

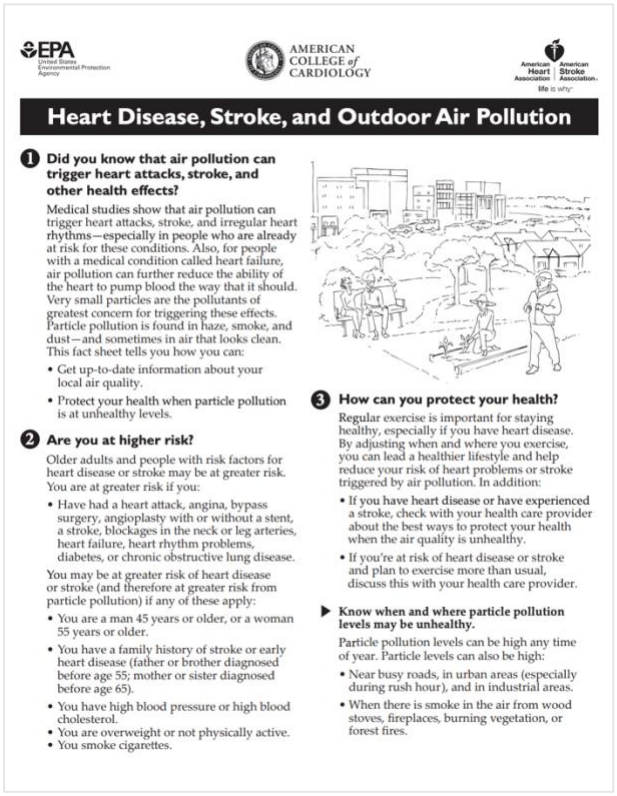
Some health departments also have programs to provide air filters to people with the inability to obtain one or to otherwise clean the air at their home. For example, Chelan Douglas Health District may have air cleaners available for households in Chelan, Douglas, Okanogan, Kittitas and Grant counties with smoke-vulnerable members who cannot afford to purchase one for themselves. Here are links to their HEPA Air Cleaner request form in English and Spanish, and completed forms can be emailed to imt.lsc@cdhd.wa.gov.

Preventing Wildfire Smoke Exposure: Tips for Specific Populations and Conditions

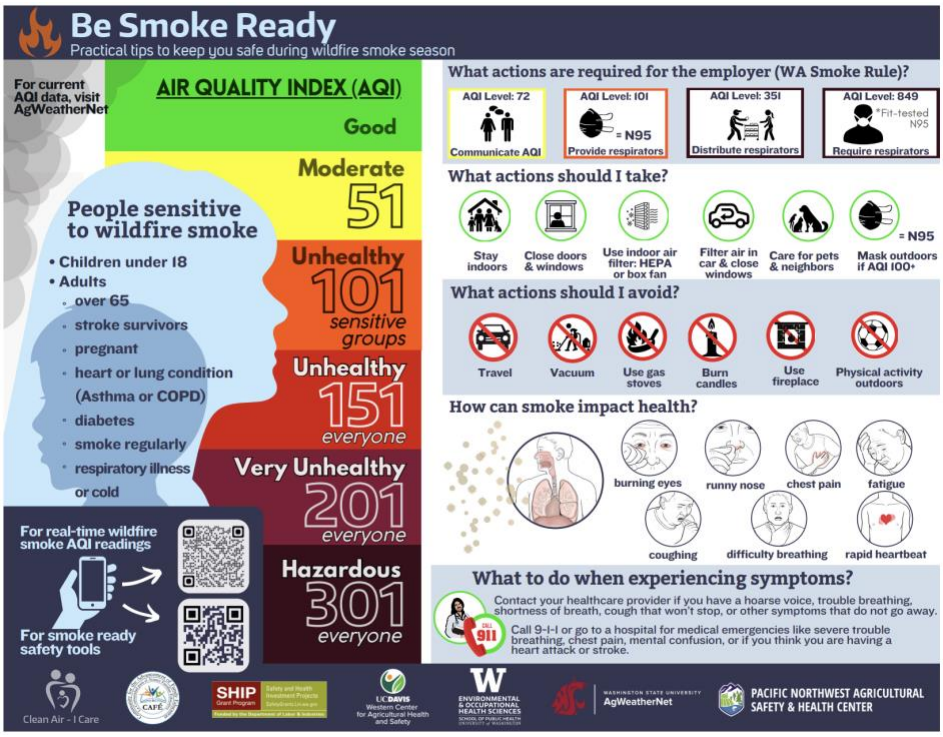
Children and Youth[23]



Heart Disease and Stroke[39]



Agricultural workers[38]



Wildfire Smoke Action Plans

Co-develop an individualized action plan with the patient and their support system to prevent exposure to wildfire smoke.

- As appropriate, delegate counseling to most appropriate members of the interdisciplinary team. *(E.g. involve community health workers/promotoras for patients who primarily speak Spanish)*
- Involve the patient's support system in planning as able with patient consent.
- Make a plan for patients who live alone, with cognitive impairment, or people with disabilities that cause mobility concerns to have someone to check on them.
- Make a plan for if the power goes out, especially for patients using electricity dependent DME or people with disabilities.
- **For patients with chronic conditions (such as heart disease, diabetes, kidney disease, stroke, dementia, asthma, COPD),** consider condition specific considerations for action planning such as medication management and adjusting fluid intake.
- Make a plan for safe attendance at dialysis sessions for patients with kidney disease or other necessary appointments.
    - Make a plan for evacuation, transport, loss of power, poor air quality, and needed supplies for people with disabilities, especially those whose mobility is impacted.
    - Parents of young children should know signs and symptoms to watch for in wildfire smoke and how reduce exposure. Determine when to restrict outdoor activities.[23]
    - Ensure pregnant patients or patients who may become pregnant understand their risk.

Example action plans can be found in the AmeriCares and Harvard Chan C-CHANGE Climate Resilience for Frontline Clinics Toolkit.[13]

Wildfire Smoke Action Plan (English)


Wildfire Smoke Action Plan and Tip Sheet

For Patients

Use this plan and tips to stay safe if wildfire smoke is in the air around you. Share this plan with everyone in your home and with friends and family members. Review this information every year so that everyone is ready to act when there is wildfire smoke.

Wildfire smoke is dangerous to your health

Wildfire smoke increases the risk of lung problems, heart problems, and other health problems. It is particularly dangerous if you have ongoing health issues such as asthma, COPD, or heart or blood vessel disease.

Before wildfire smoke

- Be aware that being outside when there is smoke may pose a health risk.
- Wildfires and wildfire smoke can make the air dangerous to breathe.

To know when the air outside may not be safe to breathe, I will check my local air quality at:

Check for fires and wildfire smoke near you on your phone, computer, or local news or radio station. Most phone weather apps now include information on air quality.

You can also get information on wildfire location and smoke at fire.airnow.gov and NOAA-HRRR (click the eye icon next to Near Surface Smoke, then click the play button at the bottom of the screen).

The website will tell you how safe the air outside is to breathe by giving you an air quality index (AQI) number for your community.

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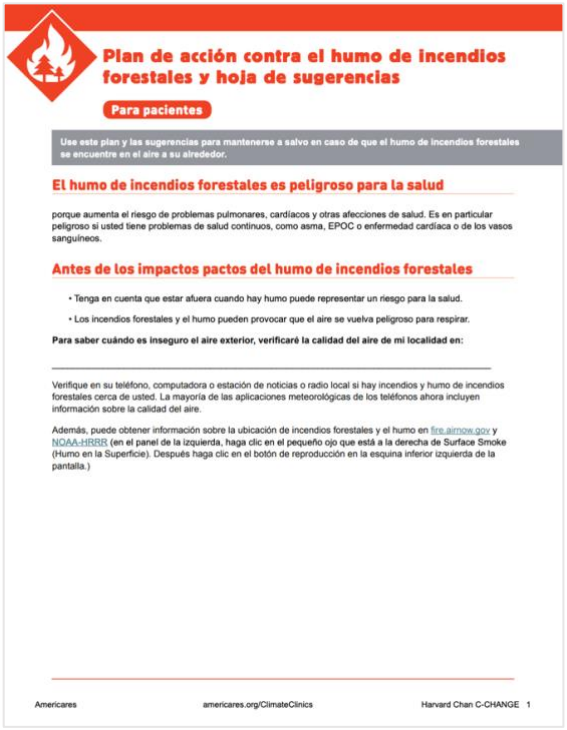
Wildfire Smoke Action Plan (Spanish)


Plan de acción contra el humo de incendios forestales y hoja de sugerencias

Para pacientes

Use este plan y las sugerencias para mantenerse a salvo en caso de que el humo de incendios forestales se encuentre en el aire a su alrededor.

El humo de incendios forestales es peligroso para la salud

porque aumenta el riesgo de problemas pulmonares, cardíacos y otras afecciones de salud. Es en particular peligroso si usted tiene problemas de salud continuos, como asma, EPOC o enfermedad cardíaca o de los vasos sanguíneos.

Antes de los impactos pactos del humo de incendios forestales

- Tenga en cuenta que estar afuera cuando hay humo puede representar un riesgo para la salud.
- Los incendios forestales y el humo pueden provocar que el aire se vuelva peligroso para respirar.

Para saber cuándo es inseguro el aire exterior, verificaré la calidad del aire de mi localidad en:

Verifique en su teléfono, computadora o estación de noticias o radio local si hay incendios y humo de incendios forestales cerca de usted. La mayoría de las aplicaciones meteorológicas de los teléfonos ahora incluyen información sobre la calidad del aire.

Además, puede obtener información sobre la ubicación de incendios forestales y el humo en fire.airnow.gov y NOAA-HRRR (en el panel de la izquierda, haga clic en el pequeño ojo que está a la derecha de Surface Smoke (Humo en la Superficie). Después haga clic en el botón de reproducción en la esquina inferior izquierda de la pantalla.)

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During Patient Care: Extreme Heat

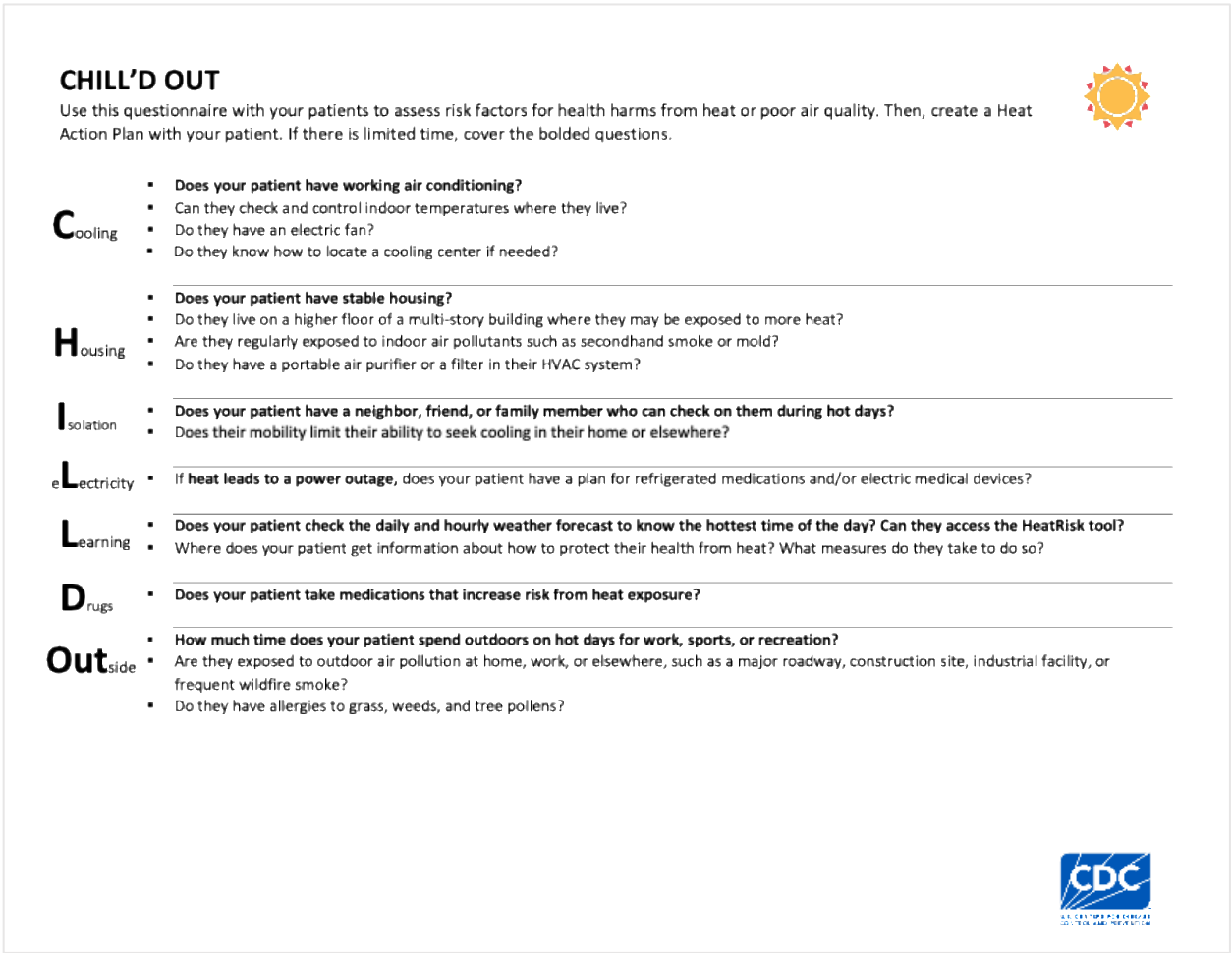
Heat Resources for Healthcare Professionals

Identifying Patient Heat Risk

Ask all patients about their risk factors for vulnerability to heat as part of social history during clinical encounters.

- **For patients with outdoor occupational exposure to heat,** identify and document key factors such as the patient's industry and occupation, whether new to the job, work clothing/personal protective equipment, workload, environmental conditions, and any workplace controls such as hydration, shade, air-conditioning, rest breaks, respirators, or adjustments to work pace or hours.

The CDC CHILL'D OUT tool can be used to assess patient risk factors for health impacts from heat, as well as poor air quality.[40]



CHILL'D OUT

Use this questionnaire with your patients to assess risk factors for health harms from heat or poor air quality. Then, create a Heat Action Plan with your patient. If there is limited time, cover the bolded questions.

Cooling
- **Does your patient have working air conditioning?**
- Can they check and control indoor temperatures where they live?
- Do they have an electric fan?
- Do they know how to locate a cooling center if needed?

Housing
- **Does your patient have stable housing?**
- Do they live on a higher floor of a multi-story building where they may be exposed to more heat?
- Are they regularly exposed to indoor air pollutants such as secondhand smoke or mold?
- Do they have a portable air purifier or a filter in their HVAC system?

Isolation
- **Does your patient have a neighbor, friend, or family member who can check on them during hot days?**
- Does their mobility limit their ability to seek cooling in their home or elsewhere?

e**L**ectricity
- If **heat leads to a power outage,** does your patient have a plan for refrigerated medications and/or electric medical devices?

Learning
- **Does your patient check the daily and hourly weather forecast to know the hottest time of the day? Can they access the HeatRisk tool?**
- Where does your patient get information about how to protect their health from heat? What measures do they take to do so?

Drugs
- **Does your patient take medications that increase risk from heat exposure?**

Outside
- **How much time does your patient spend outdoors on hot days for work, sports, or recreation?**
- Are they exposed to outdoor air pollution at home, work, or elsewhere, such as a major roadway, construction site, industrial facility, or frequent wildfire smoke?
- Do they have allergies to grass, weeds, and tree pollens?

Communicating the Health Impact of Heat

Discuss how heat can be harmful to health using plain language.[31] Provide anticipatory guidance and specific guidance related to their specific health conditions and risk factors. The AmeriCares and Harvard Chan C-CHANGE Toolkit for Extreme Heat and Health provides a Heat and Health overview for providers.[13]

- Explain that poor air quality can exacerbate risk from heat, and vice versa.

More information on communicating with patients about heat can be found in the WHO Communicating on climate change and health toolkit,[32] the AHRQ Health Literacy Universal Precautions Toolkit,[31] and the NAM Communicating About Climate Change & Health site.[33]

Heat-Related Illness Signs and Symptoms

Discuss with patient and support system the signs and symptoms to watch for, and when and how to seek help.

Illness	Signs/Symptoms	What to Do
Heat Stroke	High body temperature (103F or higher) Hot, red, dry or damp skin Fast, strong pulse Headache Dizziness Nausea Confusion Losing consciousness (passing out)	**Call 911 right away,** heat stroke is a medical emergency Move the person to a cooler place Help lower body temperature with cool cloths or a cool bath Do not give them anything to drink
Heat exhaustion	Heavy sweating Cold, pale, clammy skin Fast, weak pulse Nausea or Vomiting Muscle cramps Tiredness or weakness Dizziness Headache	Move to a cool place Loosen clothes Put cool wet cloths on body or take a cool bath Sip water **Get medical help right away if:** vomiting, symptoms get worse or last longer than 1 hour

	Fainting (passing out)	
Heat Cramps	Heavy sweating during intense exercise Muscle pains or spasms	Stop physical activity and move to a cool place Drink water or sports drinks Wait for cramps to go away before doing any more physical activity **Get medical help right away if:** cramps last longer than 1 hour, you're on a low sodium diet or you have heart problems
Heat Syncope	Dizziness, lightheadedness, and fainting, particularly after prolonged standing or sudden rising from a lying or sitting position. The skin may appear pale and feel cool and moist to the touch.	Lie down in a cool place Elevate legs to improve blood flow to the brain Drink water or sports drinks to rehydrate **Seek medical attention if symptoms persist or worsen**
Heat Rash	Red clusters of pimples or small blisters on the skin, often in areas where clothing causes friction, such as the neck, chest, groin, and elbow creases. It typically occurs in hot, humid conditions and can be itchy or cause a prickling sensation	Move to a cooler, less humid environment Keep the affected area dry and avoid further sweating Wear loose, light clothing to prevent irritation Apply cold compresses or take cool baths to soothe the skin Use calamine lotion or hydrocortisone cream to relieve itching and discomfort **Seek medical attention if symptoms persist or worsen**
Rhabdomyolysis	Muscle pain, weakness, and swelling, often accompanied by dark, tea-colored urine. Other symptoms may include nausea, vomiting, confusion, and irregular heartbeat	**Seek medical attention immediately, as this can lead to kidney injury** Stop any activity that may have caused the condition. Stay hydrated by drinking plenty of water Avoid taking nonsteroidal anti-inflammatory drugs (NSAIDs) like ibuprofen, as they can further harm the kidneys. At home, monitor urine color and volume, and report any changes to a healthcare professional.

The Northwest Healthcare Response Network provides this Heat Stroke vs. Heat Exhaustion: Symptom Comparison sheet.[41]

Heat Stroke vs. Heat Exhaustion: Symptom Comparison

Symptom	Heat Exhaustion	Heat Stroke
Body Temperature	Elevated, usually < 104°F (40°C)	Very high, ≥ 104°F (40°C)
Skin Appearance	Cool, pale, and clammy; heavy sweating	Hot, dry skin (or profuse sweating with exertion)
Sweating	Profuse	Absent (classic) or present (exertional)
Mental Status	Dizziness, fatigue, fainting	Confusion, agitation, seizures, unconsciousness
Pulse	Rapid and weak	Rapid and strong
Breathing	Fast, shallow	Rapid and deep
Nausea/Vomiting	Common	Possible
Muscle Cramps	Common	Possible but less typical
Headache	Yes	Often severe
Consciousness	Generally maintained, may faint	May be lost or severely altered
Urgency of Care	Needs prompt attention and cooling	Medical emergency – call 911 immediately

Monitoring Heat

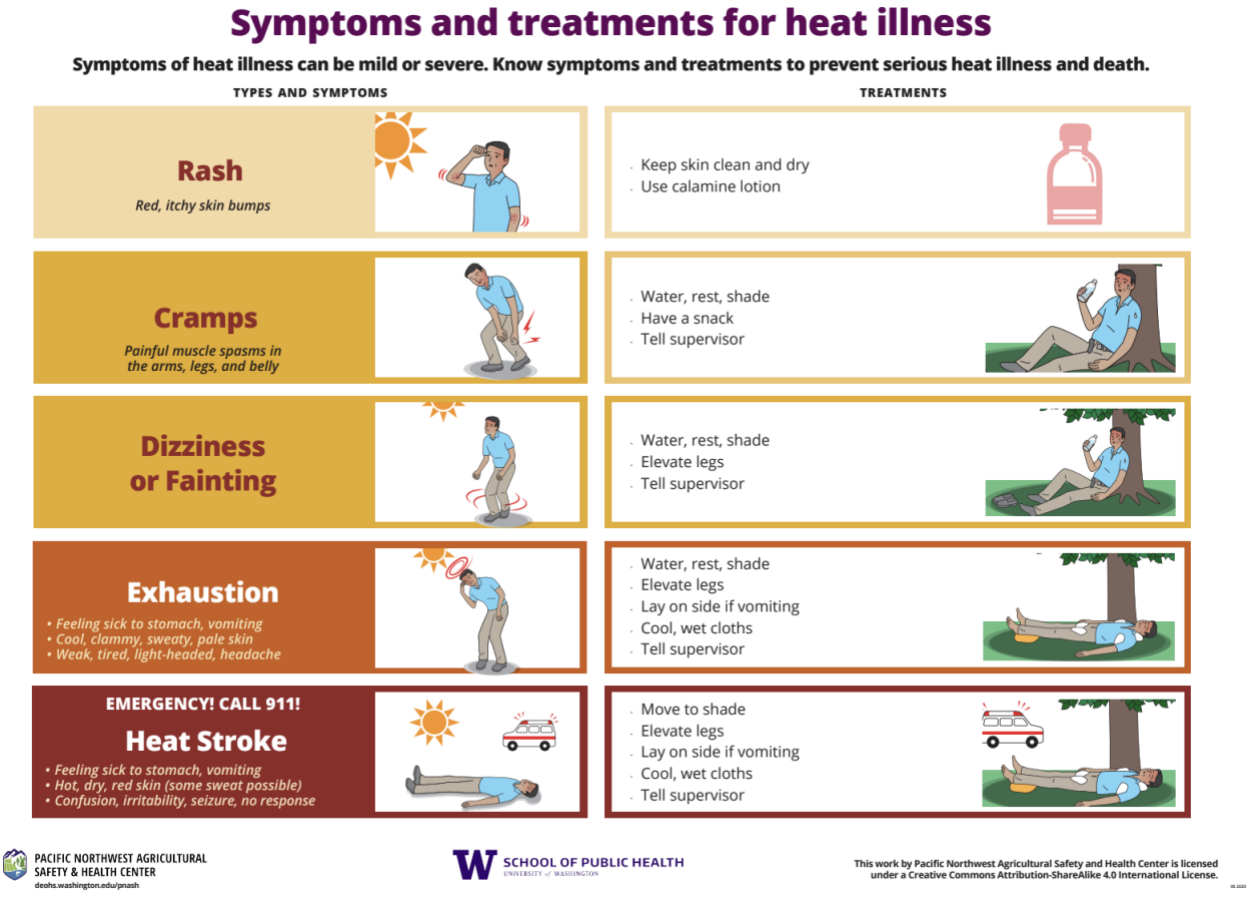
Show patients how to use tools such as the HeatRisk tool to monitor heat.[42] The CDC provides a guide for healthcare professionals on How to use the HeatRisk Tool and Air Quality Index.[43] This National Weather Service Heat Risk Fact Sheet provides an overview of the HeatRisk tool.[44]

Heat Resources for Patients

All materials in this section can be shared with patients during and after visits as needed, as handouts or attached to their after-visit summary, and are well-suited to serve as references for both healthcare professionals and patients. Access the linked full documents by clicking on the preview images.

Heat Illness Signs and Symptoms

The Pacific Northwest Agricultural Safety and Health Center provides this poster for symptoms and treatments for heat illness. A Spanish version is also available.[45]



Monitoring Heat Risk

This National Weather Service Heat Risk Fact Sheet provides an overview of the HeatRisk tool.[44]

NWS HeatRisk

Overview

NWS HeatRisk is a color-numeric-based index that uses high-resolution weather, climate, and Centers for Disease Control and Prevention (CDC) heat-health data to identify potentially dangerous heat.

It provides a daily value of expected heat risk for each 24-hour period within any upcoming 7-day forecast period.

How to Access

- Interactive CONUS Viewer: https://www.wpc.ncep.noaa.gov/heatrisk/
- Available May 2024 - NDFD webpage: https://digital.weather.gov/

Please provide feedback via the SurveyMonkey link here. Feedback can also be provided via your local or regional NWS office.

HeatRisk Considerations

HeatRisk takes into consideration:

- How unusual the heat is for the time of year
- Duration of the heat, including both daytime and nighttime temperatures
- If those temperatures pose an elevated risk of heat-related impacts based on CDC data

HeatRisk supplements the official NWS heat watch, warning, and advisory products.

Understanding HeatRisk

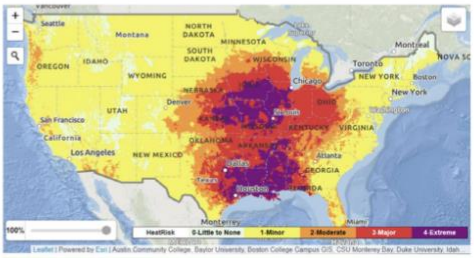
HeatRisk is divided into 5 categories and identifies the following:

- The groups potentially most at risk
- How common the heat is
- For those at risk, what actions can be taken

Each HeatRisk level is also accompanied by recommendations for heat protection. It is especially useful for decision makers and heat-sensitive populations who may need to take actions below current NWS heat product levels.

** HeatRisk is an experimental product which means that there is no guarantee of timely availability. Changes may occur without advance notice.*

HeatRisk



0 Green	Little to no risk from expected heat.
1 Yellow	**Minor** - This level of heat affects primarily those individuals extremely sensitive to heat, especially when outdoors without effective cooling and/or adequate hydration
2 Orange	**Moderate** - This level of heat affects most individuals sensitive to heat, especially those without effective cooling and/or adequate hydration. Impacts possible in some health systems and in heat-sensitive industries.
3 Red	**Major** - This level of heat affects anyone without effective cooling and/or adequate hydration. Impacts likely in some health systems, heat-sensitive industries and infrastructure.
4 Magenta	**Extreme** - This level of rare and/or long-duration extreme heat with little to no overnight relief affects anyone without effective cooling and/or adequate hydration. Impacts likely in most health systems, heat-sensitive industries and infrastructure.

National Weather Service weather.gov

Preventing Heat Illness

Cooling Tips

The Washington Department of Health provides this tip sheet for keeping indoor spaces cool.[46]

Washington State Department of Health

Cooling Indoor Spaces Without Air Conditioning

Severe heat may cause illness or even death. When temperatures rise to extreme highs, you can reduce risks by taking steps to create cooling even when air conditioning is not available. This cooling can be accomplished in a manner that minimizes pushing air across the breathing zone of building occupants, which reduces the risk of spreading airborne diseases.

This document provides tips on creating cooler indoor air in a safe manner by opening windows, using fans, pulling window shades, and limiting use of heat-generating equipment. We discuss each of these approaches below.

Pull Shades to Block Sun and Incoming Heat

- Pull the shades on any windows that get sun, including doors with windows. Keep shades pulled from early in the morning until sunlight is no longer hitting the window.
- Open shades at night, which allows windows to radiate heat outward.
- When selecting shades, chose light colors because they are more effective at reflecting visible wavelengths of light that generate heat. Also choose shades that completely cover the window or door and have a close fit.

Use Fans to Create Cooling

- Air movement through a window can be enhanced by positioning a box fan in the window to blow exhaust air out and leaving an adjacent window open. This will cause cooler air to move in as shown in the picture.

- Position portable fans either at knee level, or at the top of the room (ceiling fans are a good option). It is important to position fans where they will not directly blow air across the breathing zone of room occupants.
- **Fans will only provide cooling if the air temperature is less than body temperature (about 99 degrees Fahrenheit).**

Open Windows to Create Cooling

- Open windows when the outside air temperature is cooler if the air quality is safe.
- An open window is most effective when a door or additional window can be opened to provide a cross draft.
- As soon as the outside air becomes warm, close windows and use fans to move around the cooler inside air.

Page 1 of 2

The Pacific Northwest Agricultural Safety and Health Center also provides this guide to staying cool, in both English and Spanish.[45]

Cooling Centers

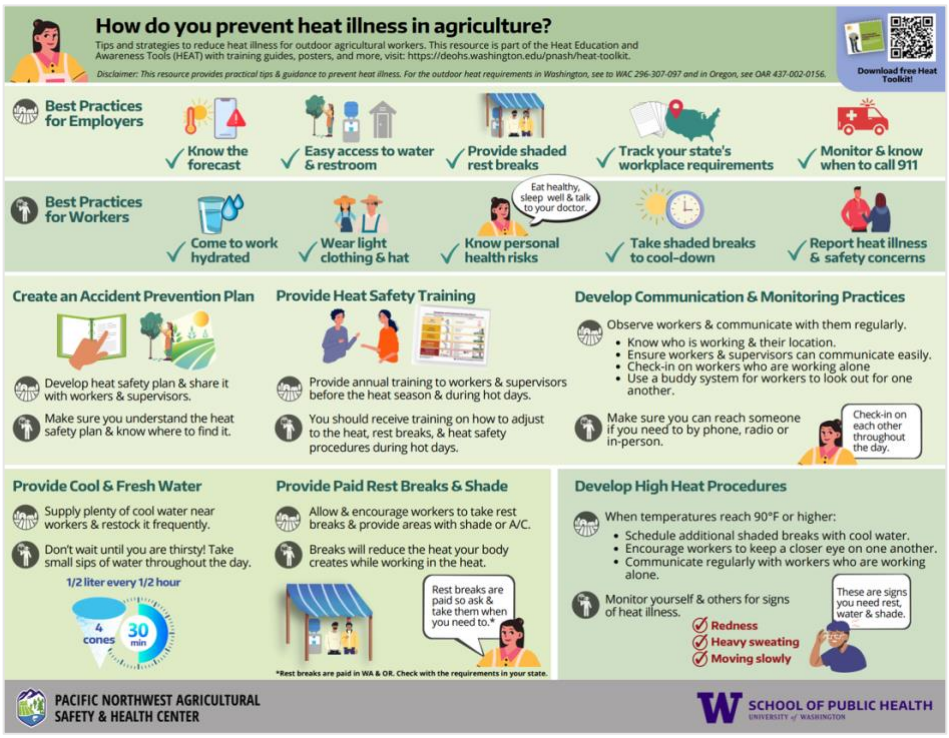
Know where local cooling centers are in your area. In Washington you can dial 2-1-1 or use this online tool to find cooling centers nearby.

You are encouraged to spend at least 2 hours each day in air conditioned/cooler space if unable to go to cooling center.

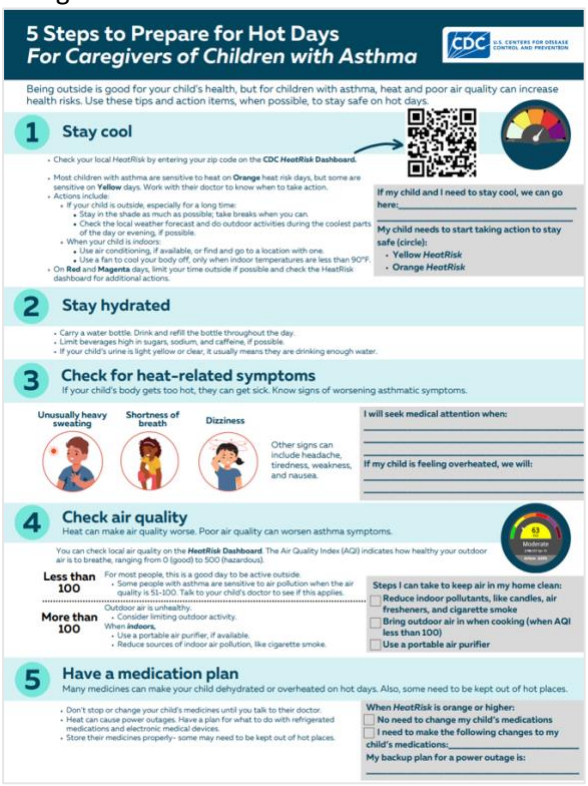
Preventing Heat Illness: Tips for Specific Populations and Health Conditions

AmeriCares and Harvard Chan C-CHANGE provide Heat Tips for People with Specific Conditions or Risk Factors.[13] A Spanish version is also available.

Agricultural workers[45]

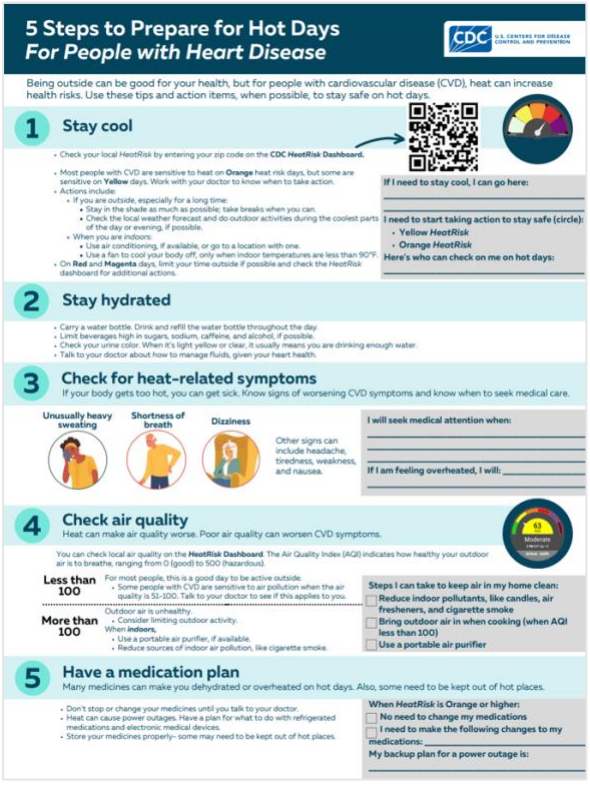


Caregivers of Children with Asthma[25]

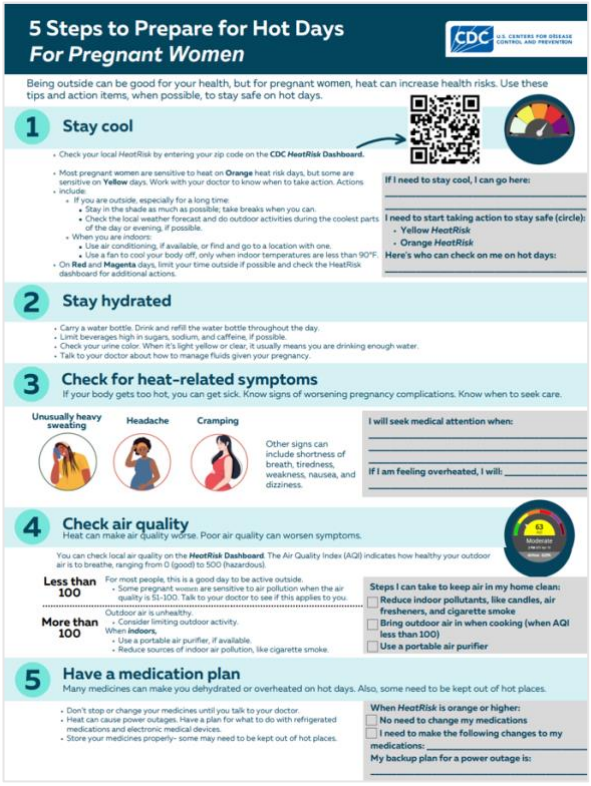


Teens with Asthma[25]

People with Heart Disease[25]



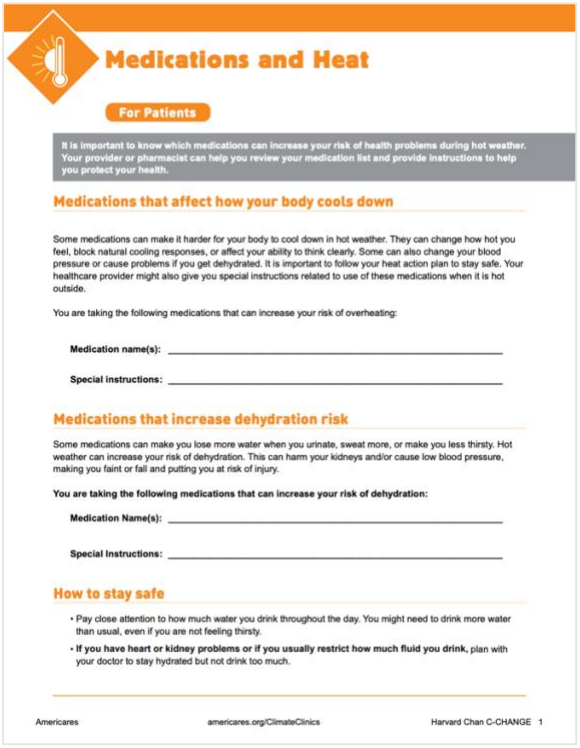
Pregnant People[25]



Medications

AmeriCares and Harvard Chan C-CHANGE provide a tip sheet for patients on Medications and Heat[13]:

English



Medications and Heat

For Patients

It is important to know which medications can increase your risk of health problems during hot weather. Your provider or pharmacist can help you review your medication list and provide instructions to help you protect your health.

Medications that affect how your body cools down

Some medications can make it harder for your body to cool down in hot weather. They can change how hot you feel, block natural cooling responses, or affect your ability to think clearly. Some can also change your blood pressure or cause problems if you get dehydrated. It is important to follow your heat action plan to stay safe. Your healthcare provider might also give you special instructions related to use of these medications when it is hot outside.

You are taking the following medications that can increase your risk of overheating:

Medication name(s): _____

Special instructions: _____

Medications that increase dehydration risk

Some medications can make you lose more water when you urinate, sweat more, or make you less thirsty. Hot weather can increase your risk of dehydration. This can harm your kidneys and/or cause low blood pressure, making you faint or fall and putting you at risk of injury.

You are taking the following medications that can increase your risk of dehydration:

Medication Name(s): _____

Special Instructions: _____

How to stay safe

- Pay close attention to how much water you drink throughout the day. You might need to drink more water than usual, even if you are not feeling thirsty.
- **If you have heart or kidney problems or if you usually restrict how much fluid you drink,** plan with your doctor to stay hydrated but not drink too much.

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Spanish

Las medicinas y el calor

Para pacientes

Es importante saber qué medicamentos pueden aumentar el riesgo de problemas de salud durante eventos de calor. El personal farmacéutico o de atención médica puede revisar su lista de medicamentos y darle instrucciones para ayudarle a proteger su salud.

Medicinas que afectan el enfriamiento de su cuerpo

Algunas medicinas pueden dificultar que su cuerpo se enfríe durante eventos de calor. Estos pueden alterar la percepción de calor, bloquear las respuestas naturales de enfriamiento o afectar la capacidad de pensar con claridad. Algunos también pueden cambiar su presión arterial o causarle problemas si se deshidrata. Es importante seguir su plan de acción contra el calor para no correr riesgos. El personal que le provee atención médica también le podría dar instrucciones especiales sobre el uso de tales medicamentos en días calurosos.

Actualmente usted toma los siguientes medicamentos que pueden aumentar su riesgo de sobrecalentamiento:

- **Nombre de la/s medicina/s:** _____
- **Instrucciones especiales:** _____

Medicinas que aumentan el riesgo de deshidratación

Con algunas medicinas se puede perder más agua al orinar o sudar o sentir menos sed. El clima caluroso aumenta el riesgo de deshidratación, lo cual puede dañar los riñones y/o bajar la presión arterial y por consiguiente, producir desmayos o caídas y el riesgo de sufrir lesiones.

Actualmente usted toma los siguientes medicamentos que pueden aumentar su riesgo de deshidratación:

- **Nombre de la/s medicina/s:** _____
- **Instrucciones especiales:** _____

Cómo mantenerse en condiciones seguras

- Preste mucha atención a la cantidad de agua que bebe a lo largo del día. Es posible que necesite tomar más agua de lo habitual, aún si no tiene sed.
- **Si tiene problemas cardíacos o renales o si suele limitar la cantidad de líquidos que toma**, planifique con su doctor/a cómo puede mantener su hidratación sin consumir demasiados líquidos.

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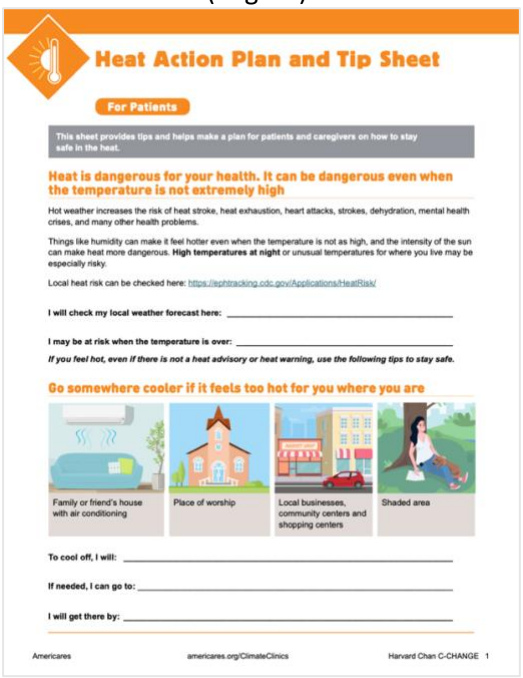
Heat Action Plans

Co-develop an individualized action plan with the patient and their support system to prevent heat exposure.

- As appropriate, delegate counseling to most appropriate members of the interdisciplinary team. *(E.g. involve community health workers/promotoras for patients who primarily speak Spanish)*
- Involve the patient's support system in planning as able with patient consent.
- Make a plan for patients who live alone, with cognitive impairment, or people with disabilities that cause mobility concerns to have someone to check on them.
- Make a plan for if the power goes out, especially for patients using electricity dependent DME or people with disabilities.
- **For patients with chronic conditions (such as heart disease, diabetes, kidney disease, stroke, dementia, asthma, COPD),** consider condition specific considerations for action planning such as medication management and adjusting fluid intake.
- Make a plan for safe attendance at dialysis sessions for patients with kidney disease or other necessary appointments.
    - Make a plan for evacuation, transport, loss of power, and needed supplies for people with disabilities, especially those whose mobility is impacted.
    - Parents of young children should know signs and symptoms to watch for in heat and how to reduce exposure.
    - Ensure pregnant patients or patients who may become pregnant understand their risk.
- **As part of the action plan, discuss with patients and support system how to manage medications in extreme heat.** See more information in the Medication Considerations section of this toolkit.

Example action plans can be found in the AmeriCares and Harvard Chan C-CHANGE Climate Resilience for Frontline Clinics Toolkit.[13]

Heat Action Plan (English)


Heat Action Plan and Tip Sheet

For Patients

This sheet provides tips and helps make a plan for patients and caregivers on how to stay safe in the heat.

Heat is dangerous for your health. It can be dangerous even when the temperature is not extremely high

Hot weather increases the risk of heat stroke, heat exhaustion, heart attacks, strokes, dehydration, mental health crises, and many other health problems.

Things like humidity can make it feel hotter even when the temperature is not as high, and the intensity of the sun can make heat more dangerous. **High temperatures at night** or unusual temperatures for where you live may be especially risky.

Local heat risk can be checked here: https://ephtracking.cdc.gov/Applications/HeatRisk/

I will check my local weather forecast here: _____

I may be at risk when the temperature is over: _____

If you feel hot, even if there is not a heat advisory or heat warning, use the following tips to stay safe.

Go somewhere cooler if it feels too hot for you where you are

Family or friend's house with air conditioning | Place of worship | Local businesses, community centers and shopping centers | Shaded area

To cool off, I will: _____

If needed, I can go to: _____

I will get there by: _____

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Heat Action Plan (Spanish)


Plan de acción y hoja de sugerencias ante eventos de calor

Para pacientes

Este documento proporciona sugerencias y ayuda en la elaboración un plan para pacientes y las sus cuidadores cómo mantenerse en ambientes seguros durante el calor.

El calor es peligroso para la salud incluso cuando la temperatura no es demasiado elevada

El clima cálido aumenta el riesgo de golpe de calor, agotamiento, ataques cardiacos, accidentes cerebrovasculares, deshidratación, crisis de salud mental y muchos otros problemas de salud.

Factores como la humedad pueden hacer que la temperatura se sienta más alta incluso cuando no es el caso y la intensidad del sol puede hacer que el calor sea más peligroso. Tener **temperaturas elevadas en las noche** o **temperaturas inusuales para el lugar donde vive** puede ser muy riesgoso.

Si desea consultar los riesgos de calor a nivel local, visite https://ephtracking.cdc.gov/Applications/HeatRisk/

Para enterarme del pronóstico meteorológico local, visitaré este sitio: _____

Podría exponerme a riesgos cuando la temperatura sea mayor de: _____

Si siente calor aunque no haya avisos o advertencias de calor, las siguientes sugerencias le ayudarán a no correr riesgos..

Si siente demasiado calor en donde se encuentra, diríjase a un área más fresca

Casa de familiares o amistades con aire acondicionado | Centro de culto | Empresas locales, centros comunitarios y centros comerciales | Áreas sombreadas

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After Patient Care

Follow-Up and Referrals

- **Document action plan in medical record and make copy easily accessible for patients and their support system** using appropriate language and reading level.
    - **When screening performed,** consider using code G0136 when screening for social needs to document screening.
- **Refer patients to programs/staff** (e.g., social worker, case manager, community health worker) that assist with health-related social needs. Follow the Foundation for Health Care Quality's reports and guidelines on Social Need Screening and Social Need Intervention.
- If patient has FSA/HSA, consider writing note of medical eligibility for an air conditioning unit as needed.
- **Provide patients with reference materials,** including those throughout this toolkit, and the Patient and Family-Directed Guidelines on the next page.

Patient and Family-Directed Guidelines

- **Know your heat and wildfire smoke risk.** Many people are at increased risk of negative health impacts related to heat and wildfire smoke, including older adults, children, people with chronic conditions like cardiovascular disease, kidney disease, heart failure, asthma, people who are pregnant, and people with certain occupations like agriculture or construction
- **Know the signs of heat-related illness and smoke exposure**
- When a period of high temperatures (e.g. heat wave) or wildfire smoke is expected, **make a plan with your household members to reduce exposure to heat and smoke.**
- During high temperatures, heat waves and/or when the air quality is poor[47]:
    - See quick reference guide for poor air quality.[23]
    - **Stay out of the heat and indoors to avoid exposure to wildfire smoke**. Avoid going outside or doing strenuous activity. Stay in the shade, spend 2-3 hours during the day in a cool place.
    - **Keep your home or building cool**. When air quality is good, use the night air to cool down your home by opening your windows after dark. During the day, close windows and cover them with blinds or shutters to block direct sunlight (consider mylar emergency or space blankets as available). Turn off electrical devices if possible and safe. Postpone vacuuming until air quality improves. Use electric fans **when temperatures are below 104F/40C**. If using air conditioning, set the thermostat to 81F and turn on an electric fan.[47]
        - **Smoke and heat can make each other worse**.
    - **Keep your body cool and hydrated**. Use light, loose-fitting clothing and bed linens, take cool showers or baths. Wet your skin using a damp cloth, spray or wet light clothing. Drink water regularly.
    - **Regularly check in with neighbors and vulnerable people in your circle** – especially those over 65, those with heart, lung or kidney conditions, mobility concerns or those who live alone.
    - Protect infants and children. **Never leave children or animals in a parked vehicle for any amount of time.** Avoid direct exposure to the sun during peak hours, seeking shade or staying indoors instead. Never cover an infant stroller or pram with dry fabric – this makes it hotter inside the carriage; instead use a thin wet cloth and rewet as necessary to lower the temperature. Dress children in lightweight loose-fitting clothing that covers the skin, and use wide-brimmed hats, sunglasses and sunscreen to protect them.
- **If you work outside, your employer is required to protect you from heat and wildfire smoke.**
    - Review Washington Labor & Industries educational pamphlet and Be Heat Smart website[48] and Wildfire Smoke website and resources.[49]
    - The University of Washington Pacific Northwest Agricultural Safety and Health Center has a Heat Illness Toolkit that may contain additional helpful resources for workers.[45]

Additional Resources for Other Healthcare Professionals

The information above is primarily designed to be useful for primary care physicians, though it may be applicable and useful to many different healthcare professionals. For healthcare professionals who are not primary care physicians, the following sections contain additional information that may be helpful for specific roles, in addition to the above sections. It also contains notes on how the above materials may be applicable to your role. Your organization may also have established protocols for you to follow, and the materials included here can be adapted to create your own program as you and your organization see fit.

Community Health Workers

Education

- Understand and learn how to communicate with patients about climate's impact on health and health equity. See resources in the Educational Resources for Healthcare Professionals section of this toolkit.
- Understand heat risk severity scale (NWS HeatRisk) and air quality index scale (AQI) and impacts on health. See resources in the Monitoring Wildfire Smoke and Monitoring Heat sections of this toolkit.

Planning & Preparedness

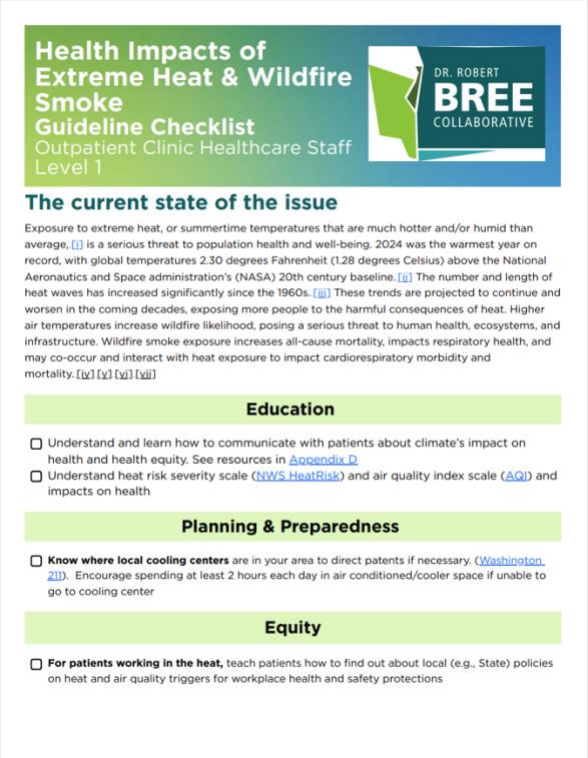
- Co-develop an individualized action plan for wildfire smoke and action plan for heat with the patient and their support system to prevent exposure to heat and wildfire smoke.

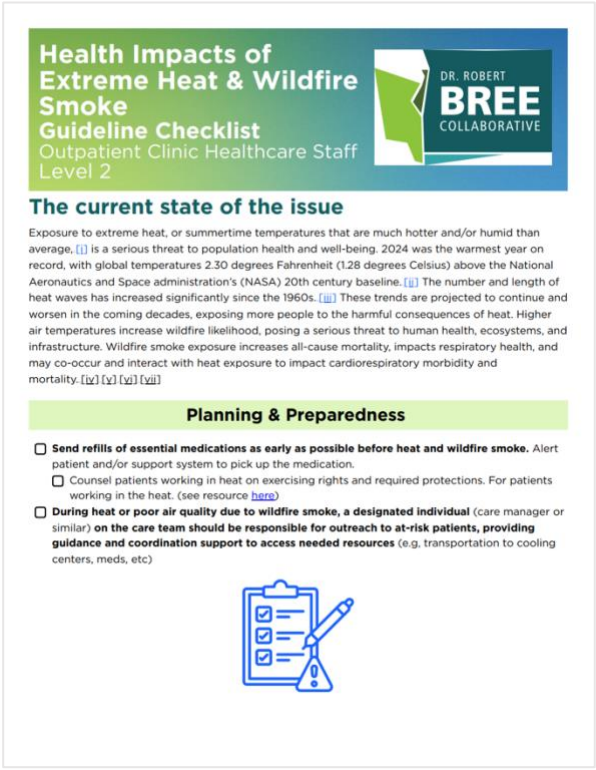
Equity

- Assist with health-related social needs (e.g. transportation, housing, air conditioning) as needed. Follow the Foundation for Health Care Quality's reports and guidelines on Social Need Screening and Social Need Intervention.
- Partner with community members to communicate and build capacity to protect against health impacts of heat and wildfire smoke.
    - Assist with the development of public education for heat and wildfire smoke that is tailored to the community's needs. The materials included throughout this toolkit may be helpful for this purpose.

Outpatient Healthcare Staff

Checklists





Education

- Understand and learn how to communicate with patients about climate's impact on health and health equity. See resources in the Educational Resources for Healthcare Professionals section of this toolkit.
- Understand heat risk severity scale (NWS HeatRisk) and air quality index scale (AQI) and impacts on health. See resources in the Monitoring Wildfire Smoke and Monitoring Heat sections of this toolkit.

Planning & Preparedness

- **Send refills of essential medications as early as possible before heat and wildfire smoke events.** Alert patient and/or support system to pick up the medication.
    - Counsel patients working in heat on exercising rights and required protections. See resource here, also found on page 28 of this toolkit.
- **During heat or poor air quality due to wildfire smoke, a designated individual** (care manager or similar) **on the care team should be responsible for outreach to at-risk patients, providing guidance and coordination support to access needed resources** (e.g., transportation to cooling centers, medications, etc.).
- Include planning for home heat and smoke refuge as necessary, especially for people with mobility concerns. Materials can be found in the Wildfire Smoke Action Plans, Heat Action Plans, Preventing Wildfire Smoke Exposure, and Preventing Heat Illness sections of this toolkit.

    - **Know where local cooling centers** are in your area to direct patients if necessary. Review the Cooling Centers section of the toolkit.

Equity

- **Develop a workflow to identify patients** that are at higher risk for heat-related illness and exacerbations of conditions due to heat and wildfire smoke. Use materials in the Identifying Patient Wildfire Smoke Risk and Identifying Patient Heat Risk sections of the toolkit as needed.
    - Consider using ICD-10 codes, prescription information and demographic information to automatically flag and add to registry. More information can be found in the Bree Report on Extreme Heat and Wildfire Smoke.[1]
- **Add patients at higher risk to a registry.**
- **Take measures to protect privacy of patient information**
- **During warmer months, direct patients on the registry to a care manager (or similar professional)** to for personalized outreach before and during extreme heat and poor air quality due to wildfire smoke.
    - **Consider tailored educational messaging for higher risk populations triggered automatically during heat or wildfire smoke.** Use materials in this toolkit in these communications as needed. Information in the Special Considerations for Health Conditions and Specific Populations, Preventing Wildfire Smoke Exposure: Tips for Specific Populations and Conditions, and Preventing Heat Illness: Tips for Specific Populations and Health Conditions sections of this toolkit may be helpful.
- **For patients working in the heat**, teach patients how to find out about local (e.g., state) policies on heat and air quality triggers for workplace health and safety protections. See resource here, also found on page 28 of this toolkit.

Tracking & Measurement

- **Track and monitor high risk patients on registry** for ED visits or hospitalizations for heat related illness and chronic condition exacerbations during warmer months. Resources on high risk patients can be found throughout the Educational Resources for Healthcare Professionals section of this toolkit.

Pharmacists

As part of their individualized action plan, discuss with patients and support system how to manage medications in extreme heat.

- Counsel patients and/or their family on increased risk and, as applicable, symptoms that may indicate drug interaction with heat.
- Consider adjustments to doses for medications most likely to interact with heat, especially for older patients taking multiple medications, patients on diuretics and patients on psychiatric medications.
- If taking medications that may lead to dehydration or affect electrolyte balance, consider evaluation of baseline hydration status, discuss monitoring at home (blood pressure, weight, hydration) and adjustment to fluid restriction or intake during periods of extreme heat.
- Counsel patients on storing heat-sensitive medications properly and planning for how heat waves or other climate events may impact storage of medications, like insulin.

Resources in Toolkit:

- Medication Considerations
- Medications

The CDC provides this non-exhaustive list of medications that may increase the risk of harm on hot days.[21] Pharmacist associations may have their own lists or other recommendations and resources.

Medication Type		**Drug Class**	**Examples**
Cardiovascular medications	Antihypertensives	Diuretics	Furosemide, Hydrochlorothiazide, Acetazolamide
		Beta blockers	Atenolol, Metoprolol, Propranolol
		Calcium channel blocker	Amlodipine, Felodipine, Nifedipine
		Angiotensin Converting Enzyme Inhibitor (ACEi) and Angiotensin II Receptor blockers (ARBs)	ACEi: Enalapril, Lisinopril, Ramipril ARB: Valsartan, Losartan
		Angiotensin Receptor-Neprilysin Inhibitors (ARNIs), combination drug including ARB	Sacubitril/Valsartan
	Anti-platelet medications		Clopidogrel
			Aspirin
	Antianginals	Nitrates	Glyceryl Trinitrate, Isosorbide Mononitrate
Psychiatric medications		Mood stabilizer	Lithium
		Antipsychotics	Haloperidol, Olanzapine, Quetiapine, Risperidone
		Selective Serotonin Reuptake Inhibitors (SSRI) and Serotonin and Norepinephrine Reuptake Inhibitors (SNRI)	SSRI: Fluoxetine, Sertraline SNRI: Duloxatine, Venlafaxine
		Tricyclic antidepressants (TCAs)	Amitriptyline, Clomipramine

Medication Type		Drug Class	Examples
Antiseizure medications			Topiramate Oxcarbazepine
			Carbamazepine
Antihistamines with anticholinergic properties			Promethazine, Doxylamine, Diphenhydramine
Analgesics		Nonsteroidal anti-inflammatory drugs (NSAIDS)	
		Aspirin	
		Acetaminophen	
Antibiotics			Sulfonamides
Antiretrovirals			Indinavir
Thyroid replacement			Levothyroxine
Stimulants			Cocaine
			Amphetamine, Methylphenidate
Hallucinogens			Methylenedioxy-methamphetamine (MDMA) (and alternatives)
Alcohol			

Urgent Care Providers

Education

- Understand and learn how to communicate with patients about climate's impact on health and health equity. See resources in the Educational Resources for Healthcare Professionals section of toolkit.
- Understand heat risk severity scale (NWS HeatRisk) and air quality index scale (AQI) and impacts on health. See resources in the Monitoring Wildfire Smoke and Monitoring Heat sections of this toolkit.

Planning & Preparedness

- **Standardize protocols for early identification**, triage and treatment of heat-related illness. See example for Heat Stroke.
    - Integrate a heat alert trigger for clinicians integrated into EHR
    - Ensure appropriate equipment is available on site for rapid cooling, including for cold water immersion.
- **Support patients and families in identifying a safe discharge location** with access to cooling and/or air filtration during heat and/or poor air quality. Include planning for home heat and smoke refuge if necessary, especially for people with mobility concerns. Relevant information can be found in the Wildfire Smoke Action Plans, Heat Action Plans, Preventing Wildfire Smoke Exposure, and Preventing Heat Illness sections of this toolkit.
- **Know where local cooling centers** are in your area to direct patients if necessary. Review the Cooling Centers section of the toolkit.

Equity

- **Participate in collaborative planning for heat and wildfires with local health jurisdictions and healthcare coalitions**. Look up your regional healthcare coalition here.

Tracking & Measurement

- Send information to patient's primary care provider if visiting or admitted for heat-related illness or exacerbation of chronic condition.

Emergency and Hospital Providers

Education

- Understand and learn how to communicate with patients about climate's impact on health and health equity. See resources in the Educational Resources for Healthcare Professionals section of toolkit.
- Understand heat risk severity scale (NWS HeatRisk) and air quality index scale (AQI) and impacts on health. See resources in the Monitoring Wildfire Smoke and Monitoring Heat sections of this toolkit.

Planning & Preparedness

- **Standardize protocols for early identification, triage and treatment of heat-related illness**. See example for Heat Stroke.[50]
    - Integrate a heat alert trigger for clinicians integrated into EHR
    - Ensure appropriate equipment is available on site for rapid cooling, including for cold water immersion.
- **Support patients and families in identifying a safe discharge location** with access to cooling and/or air filtration during heat and/or poor air quality. Include planning for home heat and smoke refuge if necessary.
- **Implement risk factor screening and action plan into discharge processes** during warmer months
- Help patients and their support system plan for home heat and smoke refuge, especially for people with mobility concerns. Relevant information can be found in the Wildfire Smoke Action Plans, Heat Action Plans, Preventing Wildfire Smoke Exposure, and Preventing Heat Illness sections of this toolkit.
- **Know where local cooling centers** are to refer patients/family. Review the Cooling Centers section of the toolkit.

Tracking & Measurement

- **Send information to patient's primary care provider** if visiting or admitted for heat-related illness or exacerbation of chronic condition.
- **Implement a protocol to collect self-reported standardized patient work information** that can be documented into EHRs. Important information to document includes employment status, retirement dates, jobs (industry and occupation) and usual or longest-held work. Example here.

Emergency Medical Services (EMS) Pre-hospital Providers

Education

- **Integrate and ensure relevant staff understand evidence-based protocols for heat-related illnesses that include recognition, rapid cooling and supportive care.** Information in the Educational Resources for Healthcare Professionals section of this toolkit may be helpful.
    - Improve capacity to perform evaporative cooling while transporting patients.
- **Planning, training exercise for responding to impacts at a community level such as evacuation, surge in ED visits, etc.**
- **For agencies engaged in parahealth/community health services,** engage in public messaging, prevention and mitigation efforts for community members. Materials found throughout this toolkit may be useful for communication materials.

Planning & Preparedness

- **Employers are required to follow State Rules for heat and wildfire smoke** to protect worker health but should also follow additional best practices to protect workers' health.
- **Engage with community partners** (e.g., healthcare coalitions, local health jurisdictions, public health departments, healthcare delivery systems) on readiness and response coordination efforts, including setting up cooling and clean air centers.

Tracking & Measurement

- **Work with the Department of Health** to improve documentation heat-related and wildfire smoke-related incidents and documentation of work-relatedness, industry, and occupation variables in WEMSIS.

Administrative Staff

The Northwest Healthcare Response Network has the following resources for Administrative staff[41]:

- Extreme Heat Toolkit
- Extreme Heat Tip Sheet
- Wildfire Smoke Tip Sheet

Long-Term Care Providers

The Northwest Healthcare Response Network has a relevant Resource Sheet for long-term care providers.[41]

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