Heat Health

JUNE 18, 2024

CDC's website is being modified to comply with President Trump's Executive Orders.

How to use the HeatRisk Tool and Air Quality Index

PURPOSE

CDC's overview of the HeatRisk tool and Air Quality Index tools for healthcare professionals.

Tools to help patients manage their health

Use these tools to help patients manage their health on hot days or days with poor air quality.

HeatRisk and the Air Quality Index provide information that can help your patients take actions to stay safe on hot days or days with poor air quality. These tools can provide your patients information to know when hot outdoor temperatures (HeatRisk) or poor air quality (Air Quality Index) may pose a risk to their health. Educating patients and caregivers about these tools can help ensure they can effectively use the information provided.

HeatRisk Tool

HeatRisk is a health-based heat forecast. It integrates health and temperature data to deliver a 7-day outlook for hot weather. HeatRisk uses a 5-level scale to indicate how risky the heat level is in a specific area. Each level uses a color to represent risks from heat exposure.

HeatRisk accounts for unique relationships

- between heat and health at the local level,
- in different locations, and
- at different times of year.

HeatRisk also accounts for the role of humid air, which can amplify heat-related health risks.

HeatRisk was developed by the National Oceanic and Atmospheric Administration (NOAA)'s National Weather Service (NWS) and the Centers for Disease Control and Prevention (CDC).

Category	Risk of Heat-Related Impacts	Who/What is at Risk?	How Common is this Heat?	Actions to consider taking at this HeatRisk level
Green (number 0)	Little to none	No elevated risk	Common	It might not be hot today, but you can get ready for warmer weather by learning about heat and your health Check the air quality in your area before heading out.
Yellow (number 1)	Minor	Those who are sensitive to heat (e.g., people with severe chronic disease or limited mobility).	Common	Stay hydrated. Stay cool. If you are very sensitive to heat, consider additional ways to stay cool. Work with your doctor to see if you need to take additional health actions. Check the air quality in your area before heading out.

Orange (number 2)	Moderate	Healthy individuals with prolonged heat exposure. Heat-sensitive individuals (e.g., people with moderate or severe chronic illness and/or limited mobility). Healthcare facilities may see increased demand, including emergency department (ED) visits	Fairly common in most locations Very common in warmer regions of the country	People who are outside for a long time or who are sensitive to heat could have health impacts. Even a few hours in a cool location can lower your risk for health problems from heat. **In addition to actions for yellow, consider:** If you are **outside**, especially for a long time, you can: • Stay in the shade as much as possible. • Take breaks when you can. • Do outdoor activities during the coolest parts of the day or evening, if possible. When you are **indoors,** you can**:** • Use air conditioning or find a location that has one. • Use a fan to cool your body off, only when **indoor** temperatures are less than 90°F. Check on your family, friends, and neighbors, especially if they have chronic medical problems or live alone. Check on pets. Work with your doctor to see if you need to take additional health actions.
Red (number 3)	Major	Most people Workers, athletes, unhoused individuals, and others with prolonged exposure to heat and/or sun outdoors. Health facilities likely to see increased demand with increases in ED visits. Power outages can occur, affecting individuals who rely on electricity-powered medical devices and refrigerated medications.	Uncommon in most locations Fairly common in warmer regions of the country.	This level of heat can lead to health impacts for everyone. Take steps to protect yourself and your family. Even a few hours in a cool location can lower your risk for health impacts from heat. **In addition to actions for yellow and orange, you can consider:** If possible, consider moving outdoor activities to a cooler day. If you have to be outside, stay in the shade as much as possible.
Magenta (number 4)	Extreme	Everyone Health systems highly likely to see increased demand with significant increases in ER visits. Power outages can occur, affecting individuals who rely on electricity-powered medical devices and refrigerated medications.	Rare in most locations Occurs a few times a year in warmer regions of country, especially the Desert Southwest	This level of heat affects everyone, as the heat is very intense and can last for a long time. Everyone can take steps to protect themselves from impacts of heat on your health. **In addition to actions for yellow, orange, and red, consider:** **Staying cool on these days likely requires staying inside with air conditioning, if possible.** If you don't have air conditioning, consider finding a location that does. Fans may not cool you off when it is this hot outside. Even a few hours in a cool location can lower your risk for health impacts from heat.

HeatRisk Tool

Description of HeatRisk Tool Table

The HeatRisk scale has 5 color-coded levels: green (0), yellow (1), orange (2), red (3) and magenta (4). Higher levels represent the increasing potential for hot temperatures to cause harm.

Color Green (Number 0)

The color green (Number 0) means the health risk is little to none. No one has an elevated risk. The temperature ranges for this level are common.

It might not be hot today, but you can get ready for warmer weather by learning about heat and your health.

Check the air quality in your area before heading out.

Color Yellow (Number 1)

The color yellow (Number 1) means the health risk is minor.

The risk is elevated for individuals who are sensitive to heat, like people with severe chronic disease or limited mobility. The temperature ranges for the yellow level are common.

If you are not sensitive to the heat, no preventive action is necessary.

Those who are at risk can:

- Stay hydrated.
- Stay cool.
- If you are very sensitive to heat, consider additional ways to stay cool. Work with your doctor to see if you need to take additional health actions.

Check the air quality in your area before heading out.

Color Orange (Number 2)

The color orange (Number 2) means the health risk is moderate. The risk is elevated for the following people and places

- Healthy individuals with prolonged heat exposure,
- Heat-sensitive individuals, (e.g., people with moderate or severe chronic illness and/or limited mobility).
- Healthcare facilities may see increased demand, including emergency department (ED) visits

The temperature ranges for the orange level are fairly common in most locations and very common in warmer regions of the country.

People who are outside for a long time or who are sensitive to heat could have health impacts. Even a few hours in a cool location can lower your risk for health problems from heat.

In addition to actions for yellow, consider:

- **If you are outside**, especially for a long time, you can:
  - Stay in the shade as much as possible.
  - Take breaks when you can.
  - Do outdoor activities during the coolest parts of the day or evening, if possible.
- **When you are indoors,** you can:
  - Use air conditioning or find a location that has one.
  - Use a fan to cool your body off, only when indoor temperatures are less than 90°F.
- Check on your family, friends, and neighbors, especially if they have chronic medical problems or live alone. Check on pets.
- Work with your doctor to see if you need to take additional health actions.

Color Red (Number 3)

The color red (Number 3) means the health risk is major. Hot temperatures pose a major risk to health for most people.

The risk is elevated for:

- Most people
- Workers, athletes, unhoused individuals, and others with prolonged exposure to heat and/or sun outdoors
- Health facilities likely to see increased demand with increases in ED visits.
- Power outages can occur, affecting individuals who rely on electricity-powered medical devices and refrigerated medications.

The temperature ranges for the red level are uncommon in most locations, but fairly common in warmer regions of the country.

This level of heat can lead to health impacts for everyone. Take steps to protect yourself and your family.

Even a few hours in a cool location can lower your risk for health impacts from heat.

In addition to actions for yellow and orange, you can consider:

- If possible, consider moving outdoor activities to a cooler day.
- If you have to be outside, stay in the shade as much as possible.

Color Magenta (Number 4)

The color magenta (Number 4) means the health risk is extreme.

The risk is elevated for the following people and places:

- Everyone
- Health facilities highly likely to see increased demand with significant increases in ER visits.
- Power outages can occur, affecting individuals who rely on electricity-powered medical devices and refrigerated medications.

The temperature ranges for the magenta level are rare in most locations. They occur a few times a year in warmer regions of country, especially the Desert Southwest.

This level of heat affects everyone, as the heat is very intense and can last for a long time. Everyone can take steps to protect themselves from impacts of heat on your health.

In addition to actions for yellow, orange, and red, consider:

- **Staying cool on these days likely requires staying inside with air conditioning, if possible.** If you don't have air conditioning, consider finding a location that does. Fans may not cool you off when it is this hot outside. Even a few hours in a cool location can lower your risk for health impacts from heat.

Air Quality Index (AQI)

The U.S. Environmental Protection Agency (EPA) developed the air quality index (AQI) to communicate whether air quality is healthy. The AQI is nationally available and reflects the contribution of common air pollutants to air quality, such as ozone, particle pollution (or particulate matter), carbon monoxide, sulfur dioxide, and nitrogen dioxide.

The AQI value is based on the pollutant with the highest concentration in the air. AQI values are divided into six color-coded categories. Higher AQI values correspond to greater amounts of air pollution and greater health concerns. The Air Quality Index does not include pollen counts. This means that on some days, the Air Quality Index may be low even though pollen levels in the air are high. High pollen counts can make asthma flare in individuals with seasonal allergies.

The AQI is reported on a scale from 0 to 500. When looking at the AQI, values of 0-100 represent satisfactory air and 101-500 represent unhealthy air. For some sensitive individuals, an AQI of 51-100 may worsen symptoms of disease. **Review the AQI with your patients and talk to them about how the levels may affect their health.** Make a plan with your patients for actions they can take when air quality is poor.

Air Quality Index	Who Needs to be Concerned?	What Should I Do?
Good 0-50	It's a great day to be active outside.	
Moderate 51-100	Some people who may be unusually sensitive to particle pollution.	**Unusually sensitive people:** *Consider reducing* prolonged or heavy exertion. Watch for symptoms such as coughing or shortness of breath. These are signs to take it easier. **Everyone else:** It's a good day to be active outside.
Unhealthy for Sensitive Groups 101-150	Sensitive groups include **people with heart or lung disease, older adults, children and teenagers.**	**Sensitive groups:** *Reduce* prolonged or heavy exertion. It's OK to be active outside, but take more breaks and do less intense activities. Watch for symptoms such as coughing or shortness of breath. **People with asthma** should follow their asthma action plans and keep quick relief medicine handy. **If you have heart disease:** Symptoms such as palpitations, shortness of breath, or unusual fatigue may indicate a serious problem. If you have any of these, contact your heath care provider.
Unhealthy 151 to 200	**Everyone**	**Sensitive groups:** *Avoid* prolonged or heavy exertion. Move activities indoors or reschedule to a time when the air quality is better. **Everyone else:** *Reduce* prolonged or heavy exertion. Take more breaks during all outdoor activities.
Very Unhealthy 201-300	**Everyone**	**Sensitive groups:** *Avoid all* physical activity outdoors. Move activities indoors or reschedule to a time when air quality is better. **Everyone else:** *Avoid* prolonged or heavy exertion. Consider moving activities indoors or rescheduling to a time when air quality is better.
Hazardous 301-500	**Everyone**	**Everyone**: *Avoid all* physical activity outdoors. **Sensitive groups:** Remain indoors and keep activity levels low. Follow tips for keeping particle levels low indoors.

Make a plan with your patients for actions they can take when air quality is poor.

SOURCE: EPA Patient Exposure and the Air Quality Index | US EPA

Description of the AQI Table

Color Green (Good)

The color green represents an index value of 0 to 50. This means the air quality is good. It's a great day to be active outside.

Color Yellow (Moderate)

The color yellow represents an index value of 51 to 100. This means the air quality is moderate. Some people who may be unusually sensitive to particle pollution need to be concerned.

Sensitive groups should consider reducing prolonged or heavy exertion. Watch for symptoms such as coughing or shortness of breath. These are signs to take it easier.

For everybody else, it's a good day to be active outside.

Color Orange (Unhealthy for Sensitive Groups)

The color orange represents an index value of 101 to 150. This means the air quality is unhealthy for sensitive groups. Sensitive groups need to be concerned. Sensitive groups include people with heart or lung disease, older adults, children, and teenagers.

Sensitive groups should reduce prolonged or heavy exertion. It's ok to be active outside but take more breaks and do less intense activities. Watch for symptoms such as coughing or shortness of breath.

People with asthma should follow their asthma action plans and keep quick relief medicine handy.

If you have heart disease, symptoms such as palpitations, shortness of breath or unusual fatigue may indicate a serious problem. If you have any of these, contact your healthcare provider.

Color Red (Unhealthy)

The color red represents an index value of 151 to 200. This means the air quality is unhealthy. Everyone needs to be concerned.

Sensitive groups should avoid prolonged or heavy exertion. Move activities indoors or reschedule to a time when the air quality is better.

Everyone else should reduce prolonged or heavy exertion. Take more breaks during all outdoor activities.

Color Purple (Very Unhealthy)

The color purple represents an index value of 201 to 300. This means the air quality is very unhealthy. Everyone needs to be concerned.

Sensitive groups should avoid all physical activity outdoors. Move activities indoors or reschedule to a time when air quality is better.

Everyone else should avoid prolonged or heavy exertion. Consider moving activities indoors or rescheduling to a time when the air quality is better.

Color Maroon (Hazardous)

The color maroon represents an index value of 301 to 500. This means the air quality is hazardous. Everyone needs to be concerned.

Everyone should avoid all physical activity outdoors.

Sensitive groups should remain indoors and keep activity levels low. Follow tips for keeping particle levels low indoors.

SOURCES

CONTENT SOURCE:

National Center for Environmental Health (NCEH)