

## **Smoke from Fires**

This fact sheet answers the most frequently asked health questions about smoke. It provides information on smoke in the outdoor air which can also travel indoors; it does not address tobacco smoke.

**Highlights:** Smoke is made up of a mixture of gases and fine particles produced when wood and other materials burn. The young, the elderly, and people with cardiovascular (heart disease and stroke) and/or persons with respiratory problems such as asthma or chronic obstructive pulmonary disease (COPD) are especially susceptible to health problems from smoke. They should take special precautions to avoid breathing smoke.

### **What are sources of smoke?**

Smoke can come from a number of sources such as forest fires, building fires, agricultural and other outdoor burning. Indoor burning in stoves and fireplaces is another source. The amount of smoke in an area depends on the size or numbers of fires, the material being burned, and the weather and atmospheric conditions.

### **What is smoke?**

Smoke is made up of visible and invisible parts. It contains tiny particles of soot suspended in air, and highly toxic gases including carbon monoxide, that you cannot see.

Smoke's very small particles are a public health concern because they are toxic to the lung and carry toxic gases with them deep into sensitive areas of the lungs. Some of these toxic substances can also be absorbed and carried to the brain and heart or other sensitive areas. Gas components of smoke will differ depending on the type of fire and the material burned.

### **What can breathing smoke do to my health?**

Breathing smoke can be harmful. The main health concern from short-term exposure to smoke comes from breathing small particles and gases. Eye and respiratory tract irritation are common effects of breathing smoke. More serious medical problems can also occur, especially for people who are sick. Those with heart, stroke, or lung problems including infections, or who are very young or old are most vulnerable.

Smoke from chemical fires can be dangerous for everyone. It can result when chemical storage facilities or chemical cargo on trucks or rail cars burn. Added care should be taken to avoid breathing smoke from this type of fire.

### **Who is more sensitive to smoke?**

People who may be more sensitive to the harmful effects of smoke include:

- infants and young children
- the elderly
- pregnant women
- cigarette smokers
- those with preexisting lung and cardiovascular conditions,
- diabetics

### **What are "preexisting" lung and cardiovascular conditions?**

Pre-existing lung and cardiovascular conditions include respiratory infection, asthma, COPD (chronic bronchitis and emphysema are the two primary COPDs), a previous heart attack, angina, coronary artery disease, congestive heart failure, or stroke. People with lung and cardiovascular conditions may experience symptoms earlier with smoke, and must be especially careful around smoke. People with undiagnosed lung or

cardiovascular condition may have problems in smoky conditions.

### **How can I tell if I or someone is having serious health problems from smoke?**

Symptoms that may point to a more serious effect than the common signs of irritation like burning eyes or runny nose include wheezing, persistent cough, shortness of breath, chest pain or discomfort, sudden overwhelming fatigue, sudden numbness or weakness of the face, arm or leg, trouble speaking or seeing, severe and intense head ache and rapid heart beat. People who develop these symptoms should contact their health care provider. Dial 9-1-1 for emergency assistance.

### **What can I do to protect myself from smoke?**

- Stay inside and keep the windows and doors closed.
- Use the recycle or recirculate mode on the air conditioner in your home or car.
- If you do not have air conditioning and temperatures are high, staying indoors with the windows closed may be dangerous in extremely hot weather. At such times, consider leaving the area or staying with friends or family who live elsewhere.
- Avoid using anything indoors that burns, including wood stoves and gas cook stoves and candles.
- Don't smoke: this puts more pollution in your lungs – and those of the people around you.
- Avoid physical exertion.
- Contact your health-care provider if you have symptoms of cardiovascular or lung problems. If you cannot reach your health care provider call 9-1-1.

### **How can I check the current air quality conditions?**

In many Washington areas information about current air quality conditions can be found at [www.airnow.gov](http://www.airnow.gov). In areas where air quality is not regularly monitored, visibility can be used to identify unhealthy smoke levels. For more information on using visibility as a guide to air quality and additional ways to protect yourself

from smoke, refer to, “Wildfire Smoke: a Guide for Public Health Officials” at

<http://depts.washington.edu/wildfire/PubHlthGuidev.9.0.pdf>

### **I am sensitive to smoke. Is there something else I can do to prepare for a smoky situation?**

People with asthma should develop an asthma management plan with their health care providers. Information about asthma management plans can be obtained at <http://www.alaw.org/asthma/>

When smoky conditions are expected, anyone who might be more sensitive to breathing smoke should consider leaving the area until the smoke clears. This would be a great time to visit relatives or friends who live away from the smoke.

### **What about a fire in a structure such as a building, factory, warehouse or other facility?**

The threat from these fires depends on the material burned, the closeness of the fire, and weather conditions. You should follow the outlined steps above, and listen for TV and radio news reports and updates, as well as instructions from emergency managers.

### **Where can I find more information on smoke?**

U. S. Environmental Protection Agency  
[www.epa.gov/airnow](http://www.epa.gov/airnow)  
Centers for Disease Control and Prevention  
[www.bt.cdc.gov/firesafety/](http://www.bt.cdc.gov/firesafety/)  
American Lung Association  
[www.lungusa.org/](http://www.lungusa.org/)  
WA State Department of Ecology  
[www.ecy.wa.gov/programs/air/airhome.html](http://www.ecy.wa.gov/programs/air/airhome.html)

### **For information call or e-mail:**

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**Toll Free: 1-877-485-7316**

For people with disabilities, this document is available on request in other formats. To submit a request, call 1-877-485-7316. TTY/TDD: 1-800-833-6388.