

# Smoke Events and First Responder Safety

## Answers to Frequently Asked Questions

### What makes smoke events dangerous for first responders?

During or after a smoke event, such as a wildfire, a warehouse fire or a gas explosion, first responders may be involved in a variety of response and recovery operations such as restoring utilities, cleaning hazardous materials, and search and rescue.

Exposure to smoke can cause health problems for anyone, but certain people may be more at risk than others. Firefighters and other first responders are typically exposed to more smoke more frequently and for a longer amount of time than the general public. Because of this, first responders may be at greater risk for long-term, adverse health effects from smoke.

### What health problems can smoke cause?

Inhaling smoke even for a short amount of time can cause immediate health effects including:

- Irritation or burning in the eyes, nose, throat and chest
- Coughing, wheezing or difficulty breathing
- Fast heartbeat
- Headache and dizziness.

Particulate matter, tiny particles that can be inhaled, travels deep into your lungs when inhaled, causing the symptoms listed above. People with certain chronic health conditions like asthma, COPD, bronchitis, heart disease and history of heart attack may have their illness aggravated by breathing particulate matter.

Smoke is a carcinogen (cancer-causing substance) and repeated exposure to smoke can increase the risk for certain types of cancer, including oral and lung cancer.

Carbon monoxide (CO) poisoning is another danger during a smoke event. CO can cause dizziness, balance problems, confusion, loss of consciousness or death. Improper use of breathing apparatus and other safety equipment can put first responders at risk of CO poisoning.

Long-term exposure to smoke can cause or worsen cardiovascular (heart and vein) disease.

### How can I protect myself from the health effects of smoke as a first responder?

Ensure that your personal protective equipment (PPE) has been properly fitted, and wear it correctly every time you respond to a smoke event. The federal agencies Occupational Safety and Health Administration (OSHA) and the National Institute of Occupational Safety and Health (NIOSH) offer guidance on selecting the correct PPE for your job.

Keep in mind that there can be other dangers aside from smoke when responding to a smoke event. Be alert and watch for heat exhaustion, dehydration, downed electrical wires, chemical exposures, excessive noise, debris and unsafe structures, and fatigue.

Routine medical evaluations can help ensure that you are healthy and fit for work. Maintaining a healthy lifestyle and incorporating a regular exercise routine can help protect first responders against sudden cardiovascular (heart) health events.

If you have a chronic lung or heart condition, always let your physician know, and report all changes in your health.

Protect yourself from smoke exposure outside of your routine job duties by limiting your time with household sources of smoke such as wood-burning fireplaces and charcoal grills. Do not smoke tobacco products, and avoid secondhand smoke from other people.

Wash all skin, hair, clothing and equipment that was exposed to smoke and soot.



*Correctly wearing PPE can protect first responders from the health effects caused by smoke. (Image source: Wikimedia Commons)*

### **If I am a first responder and I develop cancer or another chronic disease, did I get sick because of smoke?**

If you have noticed a change in your health, or believe that you are having health problems, contact your physician. If you are having a medical emergency, call 911 and seek emergency medical attention immediately.

Although frequent exposure to smoke can have a negative impact on your health, it is almost impossible to know whether a single factor caused a health problem or disease. It is most likely that many combined factors, which could include smoke exposure as well as lifestyle and other environmental exposures, caused your illness.

However, protecting yourself from smoke can still help keep you healthy since this eliminates one source of negative health impacts.

Since April 2017, Ohio has had a firefighter cancer presumption law. This means that for firefighters with six or more years of hazardous duty, the Bureau of Workers' Compensation considers all types of cancer to be a job-associated illness. This does not apply to firefighters who have not worked hazardous duty at some point during the past 20 years, who have risk factors for various types of cancers (e.g. smoking tobacco products is a risk factor for lung cancer not related to your job), or who are over the age of 70.

### **Resources**

Wildfires Response/Recovery. Occupational Safety and Health Administration (OSHA). U.S. Department of Labor.

Firefighter Resources. 2018. The National Institute for Occupational Safety and Health (NIOSH). Centers for Disease Control and Prevention (CDC).

NIOSH Alert: Preventing Fire Fighter Fatalities Due to Heart Attacks and Other Sudden Cardiovascular Events. 2007. CDC.

Frequently Asked Questions: NIOSH Fire Fighter Cancer Study. 2013. CDC.

Worker Safety During Fire Cleanup. 2012. CDC).

Senate Bill 27: Extends workers' compensation to firefighters with cancer. 2017. The Ohio Legislature, 132<sup>nd</sup> General Assembly.

### **Where can I get more information?**

Ohio Department of Health  
Bureau of Environmental Health and Radiation Protection  
Health Assessment Section  
246 N. High Street  
Columbus, Ohio 43215  
Phone: (614) 644-2727

The University of Cincinnati collaborated with the Cincinnati Fire Department to conduct research related to exposure and health. The product of this science resulted in publications and a video to communicate the hazards of firefighting. Scan the QR code below with your smartphone to watch the "Firefighter Safety Alert" video on Youtube.

<https://www.youtube.com/watch?v=Y-710U3323Y>



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