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## **Carbon Monoxide Poisoning Prevention**

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Carbon Monoxide (known by the chemical symbol CO) is a colorless and practically odorless gas. It is poisonous to people and animals, because it displaces oxygen in the blood. It is produced by the incomplete burning of solid, liquid, and gaseous fuels. Appliances fueled with natural gas, liquefied petroleum (LP gas), oil, kerosene, coal, or wood may produce CO. Burning charcoal produces CO. Running cars produce CO.

According to the Consumer Product Safety Commission, every year over 200 people in the United States die from CO produced by fuel-burning appliances (furnaces, ranges, water heaters, room heaters). Others die from CO produced while burning charcoal inside a home, garage, vehicle or tent. Still others die from CO produced by cars left running in attached garages. Several thousand people go to hospital emergency rooms each year for treatment for CO poisoning.

### **What are the symptoms of CO poisoning?**

Carbon Monoxide can have different affects on people based on its concentration in the air that people breathe. Because you can't smell, taste, or see it, you can not tell that CO gas is present. The health effects of CO depend on the level of CO and length of exposure, as well as each individual's health condition.

The initial symptoms of CO poisoning are similar to the flu (but without fever). They include:

- Headache
- Fatigue
- Shortness of breath
- Nausea
- Dizziness

Many people with CO poisoning mistake their symptoms for the flu or are misdiagnosed which sometimes results in tragic deaths.

Because CO replaces oxygen in the blood, it can make people feel sleepy. Or, if they are asleep, it can prevent people from waking up.

At higher concentrations, people can experience impaired vision and coordination, headaches; dizziness, confusion, and nausea. In very high concentrations, CO poisoning can cause death.

### **Buy and Install CO Detectors/Alarms**

The American Red Cross recommends that everyone install CO Detectors/alarms in homes and recreational vehicles.

- Before buying a CO Alarm, check to make sure it is listed with Underwriter's Laboratories (UL), standard 2034, or there is information on the package or owner's manual that says that the detector/alarm meets the requirements of the IAS 6-96 standard.
- Install a CO detector/alarm in the hallway near every separate sleeping area of the home. Make sure the detector/alarm cannot be covered up by furniture or draperies. Follow manufacturer's instructions regarding the specific location where to install it. Avoid corners (where air does not circulate).
- CO detectors/alarms are available for boats and recreational vehicles and should be used. The Recreation Vehicle Industry Association requires CO detectors/alarms to be installed in motor homes and in towable recreational vehicles that have a generator or are prepped for a generator.

### **What can you do to prevent CO poisoning?**

- Make sure appliances are installed according to manufacturer's instructions and local building codes. Most appliances should be installed by professionals. A carbon monoxide detector/alarm can provide added protection, but is no substitute for proper use and upkeep of appliances that can produce CO.
- Have the heating system (including chimneys and vents) inspected and serviced annually. The inspector should also check chimneys and flues for blockages, corrosion, partial and complete disconnections, and loose connections.
- Only burn charcoal outdoors, never inside a home, garage, vehicle, or tent.
- Do not use portable fuel-burning camping equipment inside a home, garage, vehicle, or tent.
- Always make sure to turn off any gas-powered engine (car, truck, motorcycle, ATV, lawn mower, chain saw, or generator) inside an attached garage or basement. Even if the garage door is open, you can still be affected or killed by CO. If you must test the engine, take it outdoors before starting it.
- Always refer to the owner's manual when performing minor adjustments or servicing fuel-burning appliances, and get help from a professional if you are unsure how to service such equipment.

- Do not use gas appliances such as ranges, ovens, or clothes dryers for heating your home.
- If you use a fuel-burning appliance for approved indoor uses (such as a heater), make sure it is vented to the outdoors following manufacturer's instructions. Do not use an unvented fuel-burning appliance in any room with closed doors or windows or in any room where people are sleeping.
- Install and use an exhaust fan vented to outdoors over gas stoves.
- Open flues when fireplaces are in use.
- Choose properly sized wood-burning stoves that are certified to meet EPA emission standards. Make certain that doors on all wood-burning stoves fit tightly.
- Have a trained professional inspect, clean, and tune-up central heating system (furnaces, flues, and chimneys) annually. Repair any leaks promptly.

### **What should you do if you experience symptoms of CO poisoning?**

If you think you are experiencing any of the symptoms of CO poisoning, get fresh air immediately. Open windows and doors for more ventilation, turn off any combustion appliances, and leave your home. Then call your fire department and report your symptoms. You could lose consciousness and die if you do nothing. It is also important to contact a doctor immediately for a proper diagnosis. Tell your doctor that you suspect CO poisoning is causing your problems. Prompt medical attention is important if you are experiencing any symptoms of CO poisoning when you are operating fuel-burning appliances. Before turning your fuel-burning appliances back on, make sure a qualified serviceperson checks them for malfunction.

### **What should you do when the CO detector/alarm sounds?**

Treat the alarm signal as a real emergency each time. If the detector/alarm sounds and you are not experiencing any symptoms described above, press the reset button. If the detector/alarm continues to sound, call the fire department. Immediately leave your home until a professional checks to find the reason why the detector/alarm sounded, and any problems are fixed.

### **How to test a CO detector/alarm to make sure it is working**

Follow the manufacturer's instructions. Using a test button, some detectors/alarms test whether the circuitry as well as the sensor which senses CO is working, while the test button on other detectors only tests whether the circuitry is working. For those units which test the circuitry only, some manufacturers sell separate test kits to help the consumer test the CO sensor inside the alarm.

## **References**

This information was based on:

"Carbon Monoxide Questions and Answers" developed by the U.S. Consumer Product Safety Commission, Bethesda, Maryland. CPSC Document #466.

"Sources of Indoor Air Pollution - Carbon Monoxide (CO)" developed by the U.S. Environmental Protection Agency, Washington, DC.

If you have further questions, please contact your local Department of Public Health or local fire department.