

## A Silent Killer: Carbon Monoxide Poisoning



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A mother and child poisoned by carbon monoxide are treated in an oxygen-rich hyperbaric chamber at a hospital in Massachusetts

SHIRLEY GRIFFITH: This is SCIENCE IN THE NEWS, in VOA Special English. I'm Shirley Griffith.

BOB DOUGHTY: And I'm Bob Doughty. Winter has brought cold weather to many areas in Earth's northern hemisphere. With the cold comes a danger as old as man's knowledge of fire -- death or injury by carbon monoxide poisoning. Today, we tell about this ancient and continuing danger.

(MUSIC)

SHIRLEY GRIFFITH: A sixty-six year old man and his twenty-nine year old son died last month from carbon monoxide poisoning. The two men shared an apartment home in Queens, New York. Investigators who arrived at the home reported extremely high levels of the gas.

Two weeks earlier, carbon monoxide poisoning was blamed for the death of a fifty year old woman in Hammond, Louisiana. Officials found gasoline cans and an electrical generator working in her home. The house had no electricity.

BOB DOUGHTY: These are just two of the cases of carbon monoxide poisoning that have been reported this winter.

The Centers for Disease Control and Prevention says carbon monoxide kills more than five hundred Americans every year. The CDC has found that the average number of carbon monoxide deaths in the United States is greatest in January. It notes that carbon monoxide poisoning can happen outdoors in fresh air. But the gas also has been linked with electrical generating equipment and engines on houseboats.

The Consumer Product Safety Commission is responsible for protecting Americans from unreasonable risks of death or injury from thousands of products. Last month, the commission reported information about deaths linked to carbon monoxide poisoning. It estimated the number of deaths that could be linked with products under the commission's supervision.

There were an estimated one hundred eighty-nine such deaths in two thousand eight – the most recent year for which information is available. The report says forty-nine percent of the deaths involved engine-driven tools. Heating systems were blamed for thirty-seven percent of the deaths.

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SHIRLEY GRIFFITH: Carbon monoxide poisoning is not only a problem in the United States. It causes many deaths and injuries to people and animals around the world. The gas has been a problem since people first began burning fuels to cook food or to create heat. It is a problem in all parts of the world that experience cold weather.

Carbon monoxide is called the silent killer because people do not know it is in the air. The gas has no color. It has no taste. It has no smell. It does not cause burning eyes. And it does not cause people to cough. But it is very deadly. It robs the body of its ability to use oxygen.

BOB DOUGHTY: Carbon monoxide decreases the ability of the blood to carry oxygen to body tissues. It does this by linking with the blood. When the gas links with the blood, the blood is no longer able to carry oxygen to the tissues that need it.

Damage to the body can begin very quickly from large amounts of carbon monoxide. How quickly this happens depends on the length of time a person is breathing the gas and the amount of the gas he or she breathes in. Another consideration is how much alcohol the person might have to drink.

SHIRLEY GRIFFITH: Carbon monoxide poisoning has warning signs. But people have to be awake to recognize them. Small amounts of the gas will cause a person's head to hurt. He or she may begin to feel tired. The person may feel sick. The room may appear to be turning around. The person may have trouble thinking clearly.

People develop severe head pain as the amount of gas continues to enter their blood. They will begin to feel very tired and sleepy. They may have terrible stomach pains.

BOB DOUGHTY: Carbon monoxide is measured in parts per million in a normal atmosphere. Breathing in two hundred parts per million of carbon monoxide will cause the first signs of poisoning. It will result in head pain, stomach problems and a feeling of tiredness after two to three hours.

A level of eight hundred parts per million will cause a person to lose consciousness. Victims will not know what is taking place around them. This will happen within two hours of breathing in this amount of carbon monoxide. Twelve thousand parts per million of the gas will cause death in one to three minutes.

SHIRLEY GRIFFITH: Medical experts say carbon monoxide affects people differently. For example, a small child will experience health problems or die much quicker than an adult will. The general health of the person or his or her age can also be important.

An older adult with health problems may suffer the effects of carbon monoxide more quickly than a younger person with no health problems. People with heart disease may suffer chest pains. They may begin to have trouble breathing.

Carbon monoxide does not always cause death. But it can cause many medical problems. Breathing low amounts of the gas for long periods of time can lead to permanent damage in the heart, lungs or brain. Experts say small amounts of carbon monoxide over a long period of time can greatly harm an unborn baby.

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BOB DOUGHTY: What causes carbon monoxide gas? Any device that burns fuels like coal, gasoline, kerosene, oil or wood can create the gas. Water heaters that burn natural gas create carbon monoxide. Fireplaces and stoves that burn wood create the gas. Natural gas stoves and gas dryers or charcoal grills also create carbon monoxide. Automobiles create it.

Experts say the leading cause of carbon monoxide poisoning is damaged or misused equipment that burns these fossil fuels. Many people die or are injured

by the gas because they do not use these devices correctly. Any device used to heat a home should be inspected to make sure it is working correctly. And, cooking equipment like a charcoal grill should never be used to heat an enclosed area.

SHIRLEY GRIFFITH: Fuel-burning devices can create carbon monoxide gas because not all of the fuel is burned. Most devices used for home heating have a way to expel the gas from the home. For example, a fireplace has a chimney. Natural-gas stoves or gas water heaters are usually connected to a device that safely expels the gas from the home. Automobiles also have a system for releasing unburned fuel.

Anyone who uses a device that burns fossil fuel must inspect the equipment carefully to reduce chances of carbon monoxide escaping. Companies that produce the devices usually provide directions about using the device correctly. These directions should be read and understood before using any equipment that burns fuel inside a home.

A small, portable electric generator can be dangerous. The Centers for Disease Control and Prevention warns that such a device can kill within minutes when not used correctly.

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BOB DOUGHTY: You can do a number of things to protect yourself from the effects of carbon monoxide. First, immediately leave the area if you recognize the signs of carbon monoxide poisoning in yourself or others. Seek emergency medical services after you leave the area where you suspect the gas might be. Usually, the treatment for carbon monoxide poisoning involves breathing in large amounts of oxygen. However, a doctor will know the best method to treat the effects of such poisoning.

Carbon monoxide does not quickly leave the body, even after treatment has begun. It can take several hours before the gas disappears. If you suspect carbon monoxide is a problem in your home, call your local fire department. Many firefighters have the necessary equipment to find or identify the gas.

SHIRLEY GRIFFITH: In many countries, it is possible to buy and use a special device that will warn when harmful levels of carbon monoxide are in the area. These devices can be linked to a home's electric system. Others are battery-powered. Experts say these devices should be placed near sleeping areas in the home and they should be tested at least twice a year.

The most important weapon against carbon monoxide poisoning is the safe use of materials to heat any enclosed area. Safety directions that come with heating equipment must be followed. Older equipment powered by fossil fuels should be inspected every year to make sure it continues to be safe. Knowledge about the dangers of carbon monoxide could be the most important information you ever learn.

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BOB DOUGHTY: This SCIENCE IN THE NEWS was written by Christopher Cruise and June Simms, who was also our producer. I'm Bob Doughty.

SHIRLEY GRIFFITH: And I'm Shirley Griffith. Join us again next week for more news about science in Special English on the Voice of America.