

It's winter, and the "silent killer" is on the loose again. Its favorite prey is motorists, but it also has been known to attack people in their homes. Unsuspecting campers are fair game too, like the three Air Force members who died in April 1996 after falling asleep in their sealed tent with a small propane heater burning. Their killer, carbon monoxide (CO) poisoning, was never seen, heard, or smelled. The three men simply fell asleep and never awoke. All three deaths could have been prevented if the individuals understood the nature of CO.

The gas is difficult to detect and the symptoms of CO poisoning are easily confused with other minor illnesses. First of all CO is odorless, colorless, and tasteless. It suffocates the victim by displacing oxygen in the blood, and it only takes a very small amount of CO in the air to threaten your life. In fact, air containing one percent CO can kill an individual within 5 minutes. The symptoms of CO poisoning include headache, nausea, or dizziness. Because you can't see, smell, or taste the gas and the symptoms of poisoning are easily attributed to other illnesses, often the person in danger is unaware of the hazard. They simply become drowsy and fall asleep — permanently!

Not only is the gas difficult to detect, it's easily produced. This lethal gas is the by-product of carbon-based fuel combustion. To the average person this means fuel-burning furnaces, ovens, water heaters, clothes dryers, refrigerators, or even fire places are potential threats. So, with the gas so

commonplace, how can we protect ourselves from CO poisoning?

First, furnaces and other gas powered appliances must be properly ventilated. Second, don't use a gas oven as a heater. Modern gas ovens are designed to heat a small compartment, and therefore, they don't have a stove pipe to exhaust CO. If the oven is used improperly as a spare heater and the door left open for long periods of time, much more fuel is burned than the manufacturer intended. Enough CO may build up to produce a headache — or worse! Installing a carbon monoxide detector on each level of your home can alert you to dangerous CO buildup.

Another way to protect yourself from CO poisoning is to never bring a catalytic heater, hibachi, charcoal grill, or gas lantern into a home, camper, vehicle, or tent. People die every year because they use hibachis or charcoal grills inside as makeshift heaters. These appliances require a great deal of ventilation for safe operation, and the danger of using them indoors far exceeds the benefits of the warmth they provide.

In addition to protecting ourselves from CO poisoning in our homes, we need to be aware of the CO poisoning hazard in our automobiles. Normally CO flows from the engine through the tailpipe to the rear of the car where it is dispersed into the atmosphere. However, if the exhaust system is rusted through, fatal concentrations of CO can escape into the passenger compartment. Additionally, tailpipe cracks and holes behind the muffler present a

CO hazard. But, the greatest potential for CO poisoning in automobiles occurs when an individual is stranded. Consider the following: CO can enter a car through the heater and through cracks around windows or doors. If there is a wind or breeze blowing the exhaust gases from the vehicle's tailpipe back towards the front of the vehicle, an envelope of CO forms around the stationary vehicle. It's even more likely if the vehicle is snowbound. While most people associate CO poisoning with auto heaters and cold weather, the gases can build up in warm weather when using an air conditioner.

Taking a few precautions in your vehicle can minimize your danger of CO poisoning:

- Periodically check and repair the exhaust system.
- If stranded, run the engine intermittently (15 minutes of each hour).
- Ensure the tailpipe is free of obstruction. This may mean having to check periodically if it is snowing.
- Make sure the wind is blowing exhaust away from the vehicle. If not, don't run the engine.

Knowing the symptoms of CO poisoning and first aid procedures are important, but being alert to situations that can lead to CO poisoning and taking all available precautions is even more important. Finally, the key defense against CO poisoning is adequate ventilation whether in the home, automobile, workplace, or tent. ▶

Editor's note: *The Air Force Safety Center contributed to this article.*

SILENT KILLER

Their killer, carbon monoxide (CO) poisoning, was never seen, heard, or smelled.



Photo by Ann Samantha Willner