

12 Tips To Protect Your Family From Carbon Monoxide Poisoning

Often called the silent killer, Carbon Monoxide (CO) is a colorless, odorless, and tasteless gas, formed when fuels do not burn completely. Most poisonings occur in winter, when we crank up furnaces and fireplaces, and stay inside more with the windows closed tight.

“Common symptoms of low level CO exposure are nausea, vomiting, dizziness, headaches, confusion, shortness of breath and fatigue,” reports Brendan Reid, a researcher with the Comfort Institute in Washington. “Because moderate CO exposure symptoms may mimic those of a flu, doctors often misdiagnose CO poisoning. In one Kentucky study, nearly one-fourth of hospital emergency room patients complaining of the flu were actually suffering from CO poisoning.”

Carbon monoxide (CO) is also the leading cause of accidental poisoning deaths in America (Journal of the American Medical Association). Over 600 Americans die each year due to accidental acute CO poisoning.

Recent research also finds that an acute high level exposure, or chronic long term exposure to low levels, can cause permanent brain and neurological damage. It can also compound many health problems such as heart and lung disease, anemia, diabetes, asthma, depression and learning and concentration problems. Some medical researchers speculate that chronic low level CO exposure is a cause of Sudden Infant Death Syndrome, and/or Multiple Chemical Sensitivity.

CO poisoning is insidious and doesn't affect everyone the same way. “Children, fetuses, and the elderly are the most affected, as are people with chronic medical conditions such as asthma, bronchitis, emphysema, heart disease or anemia”, says Reid. “Also, family members who spend most of the day in a CO contaminated home will accumulate it in their blood and get progressively sicker, while those who get out regularly may purge it from their bodies and not be significantly affected.”

Here are some important tips from the Comfort Institute on how to prevent poisonous CO from accumulating in your home:

CO Source: According to many recent research studies, significant amounts of Carbon Monoxide from vehicle exhaust leaks into many homes from **attached garages**. When an engine is started it puts out very high levels of CO. Even if the car is backed out relatively quickly, if the garage door is then closed, high levels of CO can be trapped in the garage.

In many homes, over the next few hours the CO will find its way into the house through many potential leakage pathways: cracks around the entry door and framework, gaps and cracks in drywall, wiring and plumbing penetrations and leaky ductwork. With the normal coming and going of most families, CO can linger in the home at low, but unhealthy levels almost perpetually.

Recommendations:

- Never leave a car idling in the garage, even with the overhead door open.
- Find and seal all air leakage sites between the house and garage that could allow CO into your home. Ask your heating contractor to perform an “Infiltrometer blower door test” to pinpoint the leaks.
- Install a small exhaust fan in the garage, set to run continuously. This will help dilute the CO levels, as well as the levels of other chemical fumes present in every garage. It will also maintain a protective pressure difference so that the airflow flows through any remaining air leaks from the house to the garage, instead of from the garage to the house.

CO Source: Furnaces, boilers and water heaters, can malfunction and fail to vent their combustion by-products out of the building.

Recommendations:

- Have your gas/oil furnace, boiler and/or water heater cleaned, tuned and maintained each year by a licensed heating contractor to ensure they are burning cleanly, and venting their by-products to the outside.

- Ask your contractor to test for CO production using an electronic CO analyzer, and make adjustments as needed to ensure a clean burn.
- Have the chimney thoroughly inspected and “draft” measured to ensure that the combustion gases are venting up the chimney. Ask for a test of “negative pressure” in the mechanical room (usually caused by return side duct leaks) that can cause the chimney to back up, spilling combustion gases into the house.
- Ask for an inspection and leakage test of the furnace heat exchanger.

CO Source: Gas ovens can produce high levels of CO, and are seldom directly vented to the outside.

Recommendations:

- If you have a gas stove, never use it to heat your home.
- Install and use a kitchen exhaust fan that vents to outdoors. (A “re-circulating” hood that passes the air through a charcoal filter will not help.) The fan should be used whenever the range top burners or oven are being used. This helps to ventilate and dilute any CO before it can reach unsafe levels.
- Ask your heating contractor to test the gas oven for CO production as well, and clean and adjust if needed.

CO Source: Unvented kerosene or gas space heaters/fireplaces can produce CO.

Recommendation: The Comfort Institute recommends against using any “unvented” gas or kerosene heaters, fireplaces or gas logs. Apart from the possibility of CO being created, they produce many other unhealthy combustion byproducts which you and your family should not breathe. They also produce large amounts of water vapor, which can cause condensation, moisture damage and mold growth. Never use an unvented appliance as a primary heat source. If you choose to keep them in your home (e.g. for emergency heat, or for short periods), ensure proper ventilation during operation.

Other CO Control Tips:

- If using a gas powered electric generator during a power outage, ensure the exhaust cannot enter the home.
- Run an exhaust fan when operating an electric oven in its self-cleaning mode.
- Never use a charcoal or propane barbecue inside a home or attached garage.
- Keep the damper of a wood burning fireplace open for at least 24 hours after the fire has “died”. Crack open a window at least one square foot when the fire is burning to reduce the negative pressure in the home created by its draft. (This negative pressure can cause water heaters or furnaces to back up.)

- Choose a “sealed combustion” furnace or water heater the next time they need to be replaced.

Install A Carbon Monoxide Alarm

The Comfort Institute, the Consumer Product Safety Commission, the EPA and most fire departments recommend that at least one Carbon Monoxide detector/alarm be installed in every home.

- Choose a battery operated unit that can be placed at eye level and work in the event of a power outage.
- Choose a more sensitive model than the standard “retail store” units which aren’t sensitive enough to detect low CO levels. Ask your HVAC contractor for information on a low level monitor.

Already Have a Carbon Monoxide Alarm?

If your CO alarm is over two years old, it may no longer work. The sensors have a limited life span. And the ‘test’ feature on most units only checks the battery and horn, not the actual CO sensor.

- Ask your heating contractor to test your CO alarm using diluted CO test gas during the annual maintenance visit.
- If your alarm is over four years old, we recommend that you discard it and invest in a new low level monitor device.

© Comfort Institute Inc. 2004 All Rights Reserved
 Document C-SRT-112 Version 1.0
 For distribution only by Comfort Institute Members in good standing
 Reproduction and Distribution By Non Members Strictly Forbidden