



# Clallam County Fire District 3

Motto: *Serve, Respect,  
Prevent and Protect*

## Carbon Monoxide (CO) Poisoning

**What is Carbon Monoxide:** Carbon monoxide (CO) is a deadly, colorless, odorless, poisonous gas. It is produced by the incomplete burning of fuels such as: coal, wood, charcoal, oil, kerosene, propane, and natural gas. Internal combustion engine-powered equipment such as portable generators, cars, lawn mowers, and power washers also produce CO.



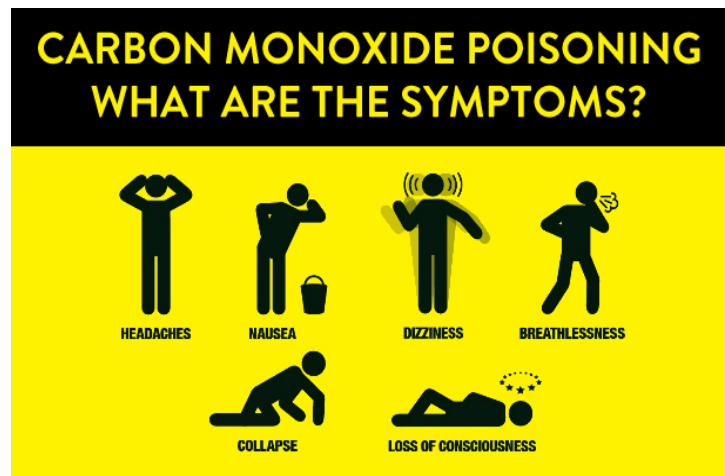
**What are the Risks:** On average, 170 people in the United States die every year from CO produced by non-automotive consumer products. These products include malfunctioning fuel-burning appliances such as furnaces, ranges, water heaters and room heaters; engine-powered equipment such as portable generators; fireplaces; and charcoal that is burned in homes and other enclosed areas. In 2005 alone, at least 94 generator-related CO poisoning deaths occurred. Forty-seven of these deaths were known to have occurred during power outages due to severe weather. Still others die from CO produced by non-consumer products, such as cars left running in attached garages. The Centers for Disease Control estimates that several thousand people go to hospital emergency rooms every year to be treated for CO poisoning.

**CO Poisoning Symptoms:** Because CO is odorless, colorless, and otherwise undetectable to the human senses; people may not know that they are being exposed. The initial symptoms of low to moderate CO poisoning are similar to the flu (but without the fever). They include:

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

High level CO poisoning results in progressive symptoms, including:

- Mental confusion
- Vomiting
- Loss of muscular coordination
- Loss of consciousness
- Ultimately death



Symptom severity is related to both the CO level and the duration of exposure. For slowly developing residential CO problems, it's easy to mistake mild to moderate CO poisoning symptoms for the flu that can result in tragic deaths. For rapidly developing, high level CO exposures (e.g., associated with use of generators in residential spaces), victims can rapidly become mentally confused, and can lose muscle control without having first experienced milder symptoms; they will likely die if not rescued.

**How to Prevent CO Poisoning**

- ◆ Make sure appliances are installed and operated according to the manufacturer's instructions and local building codes. Most appliances should be installed by qualified professionals. Have the heating system professionally inspected and serviced annually to ensure proper operation. The inspector should also check chimneys and flues for blockages, corrosion, partial and complete disconnections, and loose connections.
- ◆ Never service fuel-burning appliances without proper knowledge, skill and tools. Always refer to the owner’s manual when performing minor adjustments or servicing fuel-burning equipment.
- ◆ Never operate a portable generator or any other gasoline engine-powered tool either in or near an enclosed space such as a garage, house, or other building. Even with open doors and windows, these spaces can trap CO and allow it to quickly build to lethal levels.
- ◆ Install a CO alarm that meets the requirements of the current UL 2034 or CSA 6.19 safety standards. A CO alarm can provide added protection, but it is no substitute for proper use and upkeep of appliances that can produce CO. Install a CO alarm in the hallway near every separate sleeping area of the home. Make sure the alarm cannot be covered up by furniture or draperies.
- ◆ Never use portable fuel-burning camping equipment inside a home, garage, vehicle, or tent unless it is specifically designed for use in an enclosed space and provides instructions for safe use in an enclosed area.

- ◆ Never burn charcoal inside a home, garage, vehicle, or tent.
- ◆ Never leave a car running in an attached garage, even with the garage door open.
- ◆ Never use gas appliances such as ranges, ovens, or clothes dryers to heat your home.
- ◆ Never operate unvented fuel-burning appliances in any room where people are sleeping.
- ◆ Do not cover the bottom of natural gas or propane ovens with aluminum foil. Doing so blocks the combustion air flow through the appliance and can produce CO.
- ◆ During home renovations, ensure that appliance vents and chimneys are not blocked by tarps or debris. Make sure appliances are in proper working order when renovations are complete.

Percent CO in Blood	Typical Symptoms
<10	None
10-20	Slight headache
21-30	Headache, slight increase in respirations, drowsiness
31-40	Headache, impaired judgment, shortness of breath, increasing drowsiness, blurring of vision
41-50	Pounding headache, confusion, marked shortness of breath, marked drowsiness, increasing blurred vision
>51	Unconsciousness, eventual death if victim is not removed from source of CO

**What to do if Experiencing Symptoms** – If you think you are experiencing any of the symptoms of CO poisoning, get outside to fresh air immediately. Leave the home and call your fire department to report your symptoms from a neighbor’s home. You could lose consciousness and die if you stay in the home. 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. If the doctor confirms CO poisoning, make sure a qualified service person checks the appliances for proper operation before reusing them.