

RISK COMMUNIQUÉ

Carbon Monoxide Exposure

Each year, more than 20,000 people in the United States are treated in hospital emergency rooms for Carbon monoxide (CO) poisoning. This number is actually believed to be an underestimate of CO poisoning because many people with CO symptoms mistake the symptoms for the flu or are misdiagnosed.

There have been several recent incidents of CO poisoning in assisted living settings. These include incidents from a faulty boiler, a below ground-level kitchen exhaust fan that was not functioning properly and a generator being used in an attached garage.

Carbon monoxide is an invisible, odorless and tasteless gas that can cause severe illness. In high quantities, it can kill. By the time symptoms are visible, it may be too late to call for help. Anyone who suspects they are suffering from carbon monoxide poisoning should get fresh air immediately and seek medical help.

Early symptoms of carbon monoxide exposure may include:

- Headache.
- Dizziness.
- Weakness.
- Sleepiness.
- Nausea.
- Vomiting.

Carbon monoxide can also cause people with heart disease to develop an irregular heartbeat. Exposure to higher concentrations of the gas can cause disorientation, coma and convulsions, eventually leading to death.

When fuels are burned, such as gasoline, natural gas, propane, kerosene, charcoal and wood, carbon monoxide is released. CO poisoning can come from a variety of sources including furnaces, space heaters, stoves, generators, hot water heaters, clothes dryers, kerosene heaters, wood stoves and fireplaces. If fuel-burning appliances are not installed, maintained and used properly, CO may accumulate to dangerous and even deadly levels in cars, homes or poorly ventilated areas. Confirm that fuel burning appliances and heating units are working properly to help minimize the potential for carbon monoxide poisoning in senior housing organizations.

Carbon monoxide detectors are available as stand-alone models or system-connected, monitored devices. System-connected detectors, which can be wired to either a security or fire panel, are monitored by a central station. In case the residence/area of building is unoccupied, the residents are sleeping or occupants are already suffering from the effects of CO, the central station can be alerted to the high concentrations of CO gas and can send the proper authorities to investigate.

The gas sensors in CO alarms have a limited and indeterminable life span, typically two to five years. The test button on a CO alarm only tests the battery and circuitry, not the sensor. Check the CO alarm on installation and annually thereafter. Consider replacing alarms that are over five years old.

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Carbon monoxide concentrations can often be controlled by:

- Eliminating the source of the emissions.
- Capturing the emissions through local ventilation at the source and exhausting to the outside.
- Diluting the emissions with fresh air adequately distributed to the work area and exhausted to the outside.
- Reducing the concentration of the emissions from the source.

Additional precautions to help prevent carbon monoxide poisoning include:

- Install and operate gas-fueled appliances according to the manufacturer's instructions.
- Have heating and ventilation systems inspected annually.
- Do not use gas-fueled appliances such as an oven, cooking stove or clothes dryer to heat the home, even for a short time.
- Do not burn charcoal inside a building, garage, vehicle or tent or in a fireplace for heating or cooking.
- Do not use unvented gas or kerosene heaters in closed spaces, especially near or in sleeping areas. (Opening a door or window does not allow enough fresh air to prevent carbon monoxide poisoning.)
- Keep chimneys and flues free of blockages, corrosion and loose connections.
- Never leave an automobile running in a closed garage or in a garage attached to the building, even with the garage door open.
- Do not use any gasoline-powered engines, such as mowers, weed trimmers, chainsaws, power washers or generators, in enclosed spaces.
- If a portable generator is used:
 - Place the generator outside, far enough from the building to keep the exhaust from entering the building.
 - Locate the generator downwind from the workers.

Anyone can be at risk for CO poisoning. Certain groups — including people with chronic heart disease, anemia or respiratory problems such as the elderly — may be more susceptible to its effects. According to the Centers for Disease Control, each year, more than 400 Americans die from unintentional CO poisoning, more than 20,000 visit the emergency room and more than 4,000 are hospitalized due to CO poisoning. Fatality is highest among Americans 65 and older. It is important that organizations that work with the elderly address the risk exposure related to carbon monoxide poisoning.

Resources:

The Centers for Disease Control. www.cdc.gov

The National Fire Protection Association - NFPA 720: Standard for the Installation of Carbon Monoxide (CO) Detection And Warning Equipment. www.nfpa.org

www.carbonmonoxidekills.com

The U.S. Consumer Product Safety Commission (CPSC). www.cpsc.gov