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Carbon Monoxide Risks at Home

Recent events have raised public awareness about the risk of carbon monoxide (or CO) poisoning in the home. Here are some questions and answers about carbon monoxide from the National Fire Protection Association (NFPA)

What Is Carbon Monoxide?

Carbon monoxide is an invisible, odorless, colorless gas created when fossil fuels (such as gasoline, wood, coal, propane, oil and methane) burn incompletely. In your home, heating and cooking equipment are possible sources of carbon monoxide. Vehicles running in an attached garage could also produce dangerous levels of carbon monoxide.

Consumers can protect themselves against CO poisoning by maintaining, using, and properly venting heating and cooking equipment, by being cautious when using vehicles in attached garages, and by installing carbon monoxide alarms.

What is the effect of exposure to CO?

CO replaces oxygen in the bloodstream, eventually causing suffocation. Mild CO poisoning feels like the flu, but more serious poisoning leads to difficulty breathing and even death. Just how sick people get from CO exposure varies greatly from person to person, depending on age, overall health, the concentration of the exposure (measured in parts per million), and the length of exposure. Higher concentrations are dangerous even for a short time.

How can you protect yourself from CO poisoning?

The best defenses against CO poisoning are safe use of vehicles (particularly in attached garages) and proper installation, use and maintenance of household cooking and heating equipment.

Massachusetts law requires carbon monoxide alarms in all residences.

Safety Tips

- If you need to warm up a vehicle, remove it from the garage immediately after starting the ignition. Don't run a vehicle or other engine or motor indoors, even if garage doors are open.

- CO from a running vehicle inside an attached garage can get inside the house, even with the garage door open. Normal circulation does not provide enough fresh air to reliably prevent dangerous accumulations inside.

- Have your vehicle inspected for exhaust leaks, if you have any symptoms of CO poisoning.

- Have fuel burning household heating equipment (fireplaces, furnaces, water heaters, wood stoves, and space or portable heaters) checked every year before cold weather sets in. All chimneys and chimney connectors should be evaluated for proper installation, cracks, blockages or leaks. Make needed repairs before using the equipment.

- Before enclosing central heating equipment in a smaller room, check with your fuel supplier to ensure that air for proper combustion is provided.

- When using a fireplace, open the flue for adequate ventilation.

- Unvented kerosene heaters are illegal in Massachusetts.

- Never use gas or charcoal barbecue grills in the home or garage.

- When purchasing new heating and cooking equipment, select factory built products approved by an independent testing laboratory. Do not accept damaged equipment. Hire a qualified technician (usually employed by the local oil or gas company) to install the equipment. Ask about and insist that the technician follow applicable fire safety and local building codes.

- If you purchase an existing home have a qualified technician evaluate the integrity of the heating and cooking systems, as well as the sealed spaces between the garage and house.

- If you use an emergency generator in case of a power failure, be sure it's located outside, and that fumes cannot accidentally enter the house through an open window or door. Never run a generator indoors.

What are CO detectors?

Household carbon monoxide detectors measure how much CO has accumulated. Currently, CO detectors sound an alarm when the concentration of CO in the air corresponds to 10% carboxyhemoglobin level in the blood. Since 10% COHb is at the very low end of CO poisoning, the alarm may sound before people feel particularly sick.

What causes CO detector nuisance alarms?

Pollution and atmospheric conditions in some areas cause low levels of CO to be present for long periods of time. In fact, these "background" conditions may increase the COHb level to over 10%, causing CO detectors to alarm even though conditions inside the home are not truly hazardous.

- **Treat all CO detector alarms as real** until it has been verified that there is no threat from equipment inside the dwelling.

What to do if your CO detector alarms

If anyone shows signs of CO poisoning:

- **Have everyone leave the building right away. Leave windows and doors closed as you go to assist us in locating the source of the problem. Also leave on any furnaces, heaters, or other fuel burning appliances if they were on when the alarm sounded.**
- Use a neighbor's telephone to dial 9-1-1 to notify the Fire Department. Be sure to inform the dispatcher if anyone is feeling ill.
- The Fire Department will respond to provide medical attention and to check your home for a source of the carbon monoxide

If no one has symptoms of CO poisoning:

- Call the Fire Department, explain that your CO detector is "beeping" and no one feels ill. Please leave windows and doors closed as you go to assist us in locating the source of the problem. Also leave on any furnaces, heaters, or other fuel burning appliances if they were on when the alarm sounded. We will come and investigate the problem using our CO metering equipment.
- Be on the lookout for any symptoms of CO poisoning.
- Follow the steps above if symptoms appear.

Safety Checklist

- **Carbon monoxide detectors, are not substitutes for smoke detectors**. Smoke detectors react to fire by products, before CO detectors would alarm. Smoke detectors give earlier warning of a fire, providing more time to escape.
- To guard against smoke and fire, be sure that your home has working smoke detectors on every level and just outside of all sleeping areas.
- Know the difference between the sound of the smoke detectors and the sound of the carbon monoxide detector.
- Have a home evacuation plan for any home emergency and practice the plan with all members of the household.