

MICHIGAN



MICHIGAN STATE UNIVERSITY: Prevention of work-related injuries & illnesses through research & investigation

CARBON MONOXIDE POISONING IN MICHIGAN

Carbon Monoxide (CO) is a product of combustion. Exposure to this a colorless, odorless, tasteless gas can come from numerous indoor and outdoor sources, such as faulty furnaces, fireplaces, space heaters, clogged/blocked chimneys, cooking appliances, motor vehicle (including boats) exhaust, and fuel-powered equipment. The most common source of exposure for carbon monoxide poisoning is an improperly operating or improperly vented furnace/water heater. In Michigan from 2009 to 2014, 5,217 individuals were hospitalized or treated in the emergency department (ED) for CO poisoning. A furnace was the source of exposure in 1,037 (19.9%) cases. Approximately 8% of all furnace CO poisoning cases were exposed at work. CO binds to hemoglobin in the blood and form carboxyhemoglobin (COHb). COHb levels of concern are >1% (non-smoker) and >4% (smoker).

Some Examples of Carbon Monoxide Poisoning:

- Family of four, age range 1-31 years was treated at an emergency department (ED) for CO poisoning. Their symptoms started after turning on the heat system. Their COHb levels ranged from 13.9-20.9%.
- Family of nine, age range 1month-35 years, was treated at an ED for CO poisoning. The local fire department reported a high level of CO in the house due to a malfunctioning furnace. COHb levels ranged from 0-5%.
- A 55 year-old male, treated at an ED for CO poisoning. He was exposed at work (his work area was close to the furnace room). His COHb level was 11.5%.
- A 57 year-old female was treated at a hospital with hyperbaric chamber for CO poisoning due to a faulty furnace in her home. Her COHb level was 20.2%.
- A 24 year-old male was treated for CO poisoning at an ED. He was exposed at work to a malfunctioning furnace. The store was shut down due to a high level of CO. His COHB was 2.1%.

IN ORDER TO PREVENT SIMILAR INCIDENTS IN THE FUTURE:

- **Annually Check** your fuel-burning appliances (furnace, water heater, space heaters, cooking stove, wood stove, etc.), chimney, and associated venting systems/flues for signs of defects or obstruction, ideally by a qualified technician.
- Keep the area around your furnace clean and unobstructed.
- Do not store combustible materials (paint thinners, gasoline, etc.) near your furnace or within 6 inches of your vent pipe.
- Install at least one CO detector meeting the current UL 2034 safety standard in the hallway near every separate sleeping area and on every level of your home (including the basement).
- If the CO detector sounds leave your home immediately and call 911.

DID YOU KNOW?

- The exhaust fan located over the range top is usually un-vented and does not help discharge CO outside the home. Everyone is at risk for carbon monoxide poisoning. People at greater risk:
 - Unborn babies and infants,
 - Children and senior citizens,
 - People with coronary or respiratory conditions.
- Carbon monoxide replaces the oxygen which cells need to function
- Symptoms from carbon monoxide can range from headache, fatigue and nausea to brain damage or death
- A gas clothes dryer that is installed incorrectly can be a carbon monoxide poisoning hazard.

RESOURCES

Centers for Disease Control and Prevention, Prevention Guidance

<http://www.cdc.gov/co/guidelines.htm>

Occupational Safety & Health Administration

<https://www.osha.gov/dts/sltc/methods/inorganic/id209/id209.html>

Carbon Monoxide Safety Advice

http://www.carbonmonoxidekills.com/27/carbon_monoxide_safety_advice

