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Carbon monoxide (CO) is a colorless, odorless, and potentially harmful gas that is produced by incomplete combustion. It can be produced by faulty stoves and heating systems, lanterns, and fires. CO interferes with the blood's ability to carry oxygen and in mild cases can cause headaches or nausea. In more severe cases, CO poisoning can lead to convulsions and death by asphyxiation.

Our Scouting family has been impacted by the following near-death and fatal experiences. Please review them before your next cold weather camping experience so all will know about the dangers and the steps they can take to prevent future occurrences.

Incident Review #1

Eight members of a troop were transported to a hospital after being poisoned by carbon monoxide during a winter campout. One assistant Scoutmaster who was sleeping closest to the heater was admitted to the hospital, and the remaining members had minimal effects. The initial report was of a malfunctioning heater in a trailer. Further investigation revealed unit leadership was using a snowmobile trailer to sleep in and heating it with a propane heater. When questioned by the Scoutmaster, the chartered organization representative stated they had done this "many times." In this case, several boys who had gotten cold in their snow caves entered the trailer in the early morning hours, which exchanged some fresh air. Had they not, everyone in the trailer would have likely died.

Key Points

- Winter campers should rely on adequate insulation from clothing and sleeping gear to preserve body heat.
- Use of a flame for heat in an enclosed space is hazardous, whether in a tent, a snow cave, a camper, a utility trailer, or a travel trailer.
- Heaters in travel trailers designed for sleeping should be specifically designed for that space and adequately ventilated, which may require electricity for forced air flow.
- Any sleeping space heated by a flame, such as a vented fireplace, should have a functional carbon monoxide detector.

Incident Review #2

A 43-year-old registered adult leader fell asleep inside his truck camper and left a small heating stove running. He was found in the morning, dead from CO poisoning. Ironically, the leader was a volunteer firefighter who had returned to camp from fighting a fire.

Key Points

- Carbon monoxide is a colorless, odorless gas that exempts no one from its poison.
- A medical history review showed that this leader suffered from medical conditions that, coupled with fatigue, may have led to his lapse in consciousness.
- Portable heating devices are generally not designed for use in enclosed spaces and should be used only as indicated by the manufacturer.



During 2010–2015, 2,244 deaths resulted from unintentional carbon monoxide poisoning.

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Incident Review #3

Three adult leaders including a Scoutmaster with 25 years of camping experience succumbed to what is believed to be carbon monoxide poisoning. They were sleeping in a tent with a propane-fueled space heater of unknown origin that had been used periodically for “at least the last three years.” One apparently collapsed on his cot while putting on his shoes during the night. The two other men were in their sleeping bags.

In 2015, 36 percent of CO deaths occurred in December, January, or February.

Key Points

- Previous lucky breaks do not justify continued risky behaviors.
- Equipment that is handcrafted, homemade, modified, installed, or used beyond a manufacturer’s stated limitations should not be part of the Scouting experience.
 - Examples include alcohol-burning “can” stoves, smudge pots, improperly installed heaters, and propane burners with their regulators removed.
- Signs of CO poisoning include headache, dizziness, nausea, poor coordination, shortness of breath, lethargy, and impaired judgment.



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Discussion Questions

- Reflect on a time when you used a heater or fire to stay warm in the outdoors. Would you do anything differently today?
- What ways to stay warm in our outdoor classroom are suggested by our program literature, handbooks, or *Fieldbook*?
- What other safety precautions should you take into consideration when using heaters?
- Review the manufacturer’s instructions for a piece of chemical fuel equipment. What does it say about CO safety?

Resources

- *Guide to Safe Scouting*—Chemical Fuels and Equipment: www.scouting.org/HealthandSafety/GSS/gss06.aspx
- *Boy Scout Handbook*
- *Fieldbook*



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These incidents highlight the reasons why the *Boy Scout Handbook* prohibits the “use (of) gas stoves, ovens, candles or other flames in tents.”