



REPRINTS: Carbon Monoxide - The Silent Killer

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Carbon Monoxide Can Kill Boaters in Minutes

19 September 2002 (Reuters Health) - The near-fatal illnesses of two Georgia children highlight the dangers posed by high levels of carbon monoxide in boat exhaust, according to a report from the US Centers for Disease Control and Prevention (CDC). In one case, a 2-year-old stopped breathing and was rendered unconscious after spending less than a minute at the stern of a boat during a family water-ski outing. In fact, since 1990, US government officials have recorded "17 fatalities and 37 nonfatal poisonings on US waters resulting from exposure to the propulsion engine exhaust of ski boats and cabin cruisers," according to the CDC.

Their report on the case of the two Georgia children is published in this week's issue of the CDC journal *Morbidity and Mortality Weekly Report* [*Morbidity and Mortality Weekly Report* 200251:829-830 (CDC)].

According to witnesses, in June of this year, a Georgia family--including two boys aged 4 and 12 years, and a girl aged 2--went water skiing on a lake. While the boat was idling, the 2-year-old girl climbed onto a wooden swim platform at the boat's stern, lying on her back and kicking her legs in the water. "In less than 1 minute, she became unconscious and unresponsive," the CDC report indicates. Her father, a doctor, quickly realized that she was not breathing but still maintained a pulse.

After performing mouth-to-mouth resuscitation, the child began to breathe again and 35 minutes later EMS personnel arrived to provide her with oxygen. However, even 3 hours later her levels of carboxyhemoglobin--CO-laden blood cells--were still more than 14%. Less than 5% is considered normal.

The family's troubles were not over, however. As his father attempted to revive her, the girl's 4-year-old brother stood on the same swim platform as the boat continued to idle. "Several hours after being removed from the water, he complained of severe headache, vomiting, and fell asleep," the report authors relate. The boy was quickly transported to the hospital where he received oxygen therapy to combat high levels of carbon monoxide in his blood. Luckily, both children made full recoveries and were later discharged from the hospital.

But experts at the CDC say the incidents serve as a perfect illustration of how quickly carbon monoxide--a colorless, odorless gas--can overwhelm unsuspecting individuals. And while many

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boaters may understand the dangers of CO poisoning on larger craft such as houseboats, the Georgia report "describes CO poisoning resulting from direct exposure to CO in the exhaust of a ski boat." To minimize CO poisoning risks, the CDC recommend that boaters "avoid swimming or body surfing near the exhaust system while the boat or generator is running," and to be aware that CO from motor exhaust can collect in the rear portions of boats, as well.

Boaters also need to be aware that typical symptoms of CO poisoning--headache, nausea, vomiting or dizziness--can mimic other maladies such as seasickness or heat exhaustion. They also call for more research and public education into the issue. "Studies of CO concentrations in the air around boats and of carboxyhemoglobin levels in recreational boaters are needed to determine the extent of boat-related CO poisonings, and public health campaigns to warn of the danger," they write.

Local CO Poisoning Serves as National Warning

19 September 2002 (Augusta Chronicle/Tom Corwin) - A frightening and unusual case of children being poisoned by carbon monoxide while waterskiing at Lake Thurmond is now serving as a national warning and an appeal for safer boat engines.

The case of Ally and Charlie Richards of Evans appears today in the U.S. Centers for Disease Control and Prevention's Morbidity and Mortality Weekly Report, which is distributed to health care workers nationwide. It was coauthored by their parents, family physician Rick Richards and Nan Richards, along with other carbon monoxide experts. The unusual poisoning is one of only a handful of cases nationwide, but experts suspect more occur that go unreported. It has prompted the CDC and other federal agencies to work together to increase awareness about the dangers of open-air carbon monoxide exposure and to call for lower carbon monoxide emissions from boat engines.

In June, the Richards family was enjoying a calm Sunday afternoon at the lake when Mrs. Richards and 2-year-old Ally clambered out onto the swim deck behind their idling motorboat, preparing for a swim. Mrs. Richards started to get in the water but turned around and saw Ally was already slumped over.

The girl went into a seizure and stopped breathing. As the family raced back to the dock, Dr. Richards was able to resuscitate her. At the hospital, her carbon monoxide level was tested at three times normal. Charlie, 4, succumbed later and was taken to the hospital, where his level was twice the normal range.

The shock of the incident hit the parents on several levels. "From a personal perspective, the kids almost died," Dr. Richards said. "But from a professional perspective, it had never occurred to me and, the more we talked to people, had not occurred to other health care providers that this was even a remote possibility." Dr. Richards contacted the CDC, and eventually the CDC began working with the National Institute for Occupational Safety and

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Health and the U.S. Coast Guard, which would have jurisdiction, said Allison Stock, a toxicologist and epidemic intelligence officer for the National Center for Environmental Health at the CDC. They have documented 51 boat poisonings, including 17 deaths, but took particular notice of this case. "Any type of open-air carbon monoxide exposure is very unusual," Dr. Stock said. "It's not what people typically think of for carbon monoxide."

The interagency group has met with boat manufacturers, but Dr. Stock didn't know the outcome of that meeting. The CDC report points out that unlike cars, boat motors do not have catalytic converters, which cut carbon monoxide emissions by more than 90 percent. The CDC will continue monitoring the problem, including testing blood levels in boaters before and after excursions. And the Richards family will continue raising awareness.

For their part, Ally and Charlie seemed to have suffered no lasting damage from their ordeal. Days after they got out of the hospital, they posed for The Augusta Chronicle on the same boat deck. As the family began to leave, "They were fussing that we weren't going in the water," Dr. Richards said, laughing.

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