Written statement of:

Eric Lavonas, MD
Associate Director, Rocky Mountain Poison and Drug Center
Denver Health and Hospital Authority
Denver, Colorado

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Regarding:

H.R. 1796, the Residential Carbon Monoxide Poisoning Prevention Act

Good morning. I'd like to thank the Committee, and particularly Representatives Rush and Matheson, for inviting me to speak with you today. By means of introduction, I am an emergency physician and medical toxicologist from Denver, Colorado. I work for the Rocky Mountain Poison and Drug Center, the nation's busiest poison control center, serving the states of Colorado, Nevada, Montana, Idaho, and Hawaii. We are part of the Denver Health and Hospital Authority. I'm also on the faculty of the University of Colorado School of Medicine. I have worked actively in the prevention and treatment of carbon monoxide poisoning for ten years. I have worked with state and local government to design and enact carbon monoxide alarm laws, performed research with the Centers for Disease Control and Prevention to study the effectiveness of these laws, and serve on the Underwriters Laboratories / American National Standards Institute Standards Technical Panel 2034, which sets the voluntary standards for carbon monoxide alarms. Before coming to Denver, I worked in Charlotte, North Carolina, where I ran the hyperbaric oxygen unit that took care of most of the serious carbon monoxide poisoning cases in western North Carolina.

I am passionate about this issue because, despite all our efforts, carbon monoxide poisoning remains the third leading cause of unintentional poisoning death in the United States. Poisoning is second only to motor vehicle crashes as a cause of death due to injury in the United States.[1] Excluding deaths due to drug abuse, more than half of all unintentional poisoning deaths in the United States are due to carbon monoxide poisoning.[2] The most recent data from CDC reported 562 unintentional deaths caused by carbon monoxide poisoning in 2004. That does not count deaths that were fire-related, nor does it count another 1,200 deaths due to suicide. More than 20,000 people are treated in America's emergency departments each year because of unintentional carbon monoxide poisoning.[3] Rates are slightly higher for women and small children. It's surprising, but there isn't much variation between regions of the country. Even with the best possible treatment, about a quarter of these survivors develop brain injuries, many of which are permanent.[4] There is no question that carbon monoxide poisoning is a major public health problem in the United States.

Statistics are important, but they don't do enough to convey the importance of this problem. Let me give you three recent examples. I should stress that, although I have some connection to each of these stories, all the information I'm sharing comes from public sources:

- In November, 2008, the Lofgren family of Denver, Colorado, won the use of a ski home in Aspen in their children's school charity auction. Unfortunately, a vent pipe in the heating system had become disconnected. Carbon monoxide poisoning killed Parker and Caroline Lofgren, their 10-year-old son, Owen, and their 8-year-old daughter, Sophie.[5]

- In January of 2009, a winter storm loosened the chimney cap on an apartment building near the University of Denver. A repairman tightened the cap down. The following morning, a 23-year-old graduate student, Lauren Johnson, was found dead in her apartment from carbon monoxide poisoning.[6]

- Just this January, we had a success story in Charlotte, North Carolina. A family in a downstairs apartment used a charcoal grill to cook dinner and warm the home. Charlotte has a carbon monoxide alarm law, and the landlord had installed a carbon monoxide alarm in every apartment in the building. It appears that, when the alarm went off in the downstairs apartment, the mom pulled out the battery. A few hours later, the occupant of the upstairs apartment was awakened when his carbon monoxide alarm went off. He heard people inside the downstairs apartment, knocked on the door, and then called 911. The Charlotte Fire Department forced entry, and found the mother and three small children semi-comatose and vomiting on the floor. Potentially lethal levels of carbon monoxide were present in both apartments. If it wasn't for a good landlord who followed Mecklenburg County's carbon monoxide alarm law, at least five people would have died.[7]

To give you a better idea of the impact of carbon monoxide poisoning on survivors, let me tell you about a few of the patient's I've personally treated:

- An international business consultant flew home from Europe, dropped his bag on the couch, and went to sleep. Several hours later, he woke up with a horrible headache, vomiting, and trouble walking. He had to crawl down his stairs to get help. Even after treatment with hyperbaric oxygen, he had difficulty with concentration and complex thinking, and was unable to work. The last I heard, he was applying for permanent disability.

- A general contractor just happened to have a generator in his truck when an ice storm took out the power to his neighborhood. He's a pretty smart guy, so he set up the generator in his unfinished basement, opened all the windows and doors, and went to bed. Being a contractor, he had a carbon monoxide alarm in his home. The alarm woke him up, and he stumbled around the house to shut off the generator. The next morning, the paperboy found him passed out on his front lawn. Like the previous patient, he looked good after treatment, but then developed trouble concentrating. The last time I spoke with him, he was still unable to work, and his business was falling apart.

Carbon monoxide poisoning is often called "the silent killer," because it gives little warning. Carbon monoxide is colorless, odorless, and mixes freely with air. Carbon monoxide is present in nearly every home. Everything that burns fuel, including automobiles, gas appliances, fireplaces, grills, and electrical generators, produces some carbon monoxide. The reason more people don't get sick is a combination of good design, such as furnaces that vent to the outside, and good behavior, such as not running a generator inside the house or garage.

Three pillars of carbon monoxide poisoning prevention are source reduction, early detection, and public education.

Source reduction is basically good engineering: Designing, installing, and maintaining equipment to minimize the amount of carbon monoxide that is produced and to safely route the gas out and away from people. The CPSC and EPA have good people working on that. Other than to say that they need more resources, I'm not going to talk about that any further today.

Public education is crucial as well, for obvious reasons. The CDC and CPSC have put a lot of energy and focus into this area, and HR 1796 addresses this a bit with generator warning labels. However, people often don't follow written warnings. Changing behavior requires a message that is timely, relevant, and repeated often. We can do much more to train the public not to accidentally poison themselves, but that's a conversation for another day.

We are not going to make much headway in the fight against carbon monoxide poisoning without early detection, and that means carbon monoxide alarms. In our nation of 127 million households, things break! This can happen to anyone; I've even had a carbon monoxide leak in my own home. Unfortunately, it's easy to mistake the early signs of carbon monoxide poisoning for food poisoning, a headache, or "the flu." Doctors miss the diagnosis, too. When carbon monoxide leaks into a home, the best way to prevent serious carbon monoxide poisoning is a carbon monoxide alarm.

Carbon monoxide alarms are inexpensive. They currently cost about $20, and the price continues to drop. Although sensor reliability was a problem in the past, modern sensors are quite good. The Charlotte Fire Department tracks its false alarm rate. About 60% of the time, when they respond to a carbon monoxide alarm activation, the alarm is right. Both the National Fire Protective Association and the International Code Council have placed carbon monoxide alarm requirements into their residential building codes. [8,9] Because building code requirements generally only kick in when a home is build or undergoes substantial renovations, it will take 30 years or more to solve this public health problem through building codes. Currently, 24 states have some form of residential carbon monoxide alarm law.[10] This is a growing national standard, and the states are leading the federal government.

To my knowledge, HR 1796 and its companion, Senate Bill 1216, are the first pieces of national legislation to directly address the problem of carbon monoxide poisoning. HR 1796 is a small step in the right direction. Its goals are modest: To ensure that generators have appropriate warning labels, as currently required by the CPSC, to ensure that all carbon monoxide alarms sold in this country meet widely agreed-upon industry standards, and to authorize block grants to help the states that choose to do so implement carbon monoxide alarm programs.

In addition to the provisions in HR 1796, I would encourage the Committee to consider these "next steps" for future legislation.

First, require that carbon monoxide alarms be installed in any housing subsidized by the federal government, including HUD housing, VA-subsidized housing, and government-controlled housing such as military and diplomatic housing. The cost would be about 50 cents per dwelling unit per month, including batteries. That's money well invested in terms of lives saved, and would be largely offset by health care costs avoided.

Second, fund positions within the CDC dedicated to addressing the problem of carbon monoxide poisoning. Currently, the Air Pollution and Respiratory Health Branch of the CDC's National Center for Environmental Health has no positions funded for carbon monoxide poisoning work. The agency has done excellent work in recent years, but each CDC official has to do this work in between other projects. The EPA, which regulates carbon monoxide in automobile exhaust, and the Consumer Products Safety Commission are also trying to do this work on a shoestring. I can't think of another problem that kills 1,700 Americans each year and has so little federal support.

Thank you for taking the time to meet with me today. I will do my best to answer any questions.

References:

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