

## Indicator: Carbon Monoxide Hospitalizations

Carbon monoxide, or CO, is a toxic gas that you cannot see or smell. CO is given off whenever fuel or other materials are burned. Breathing high levels of CO can cause severe illness or death in a matter of minutes. Although carbon monoxide poisoning can almost always be prevented, every year more than 500 Americans die as a result of accidental exposure to this toxic gas. And every year thousands more across the U.S. require emergency medical care for non-fatal carbon monoxide poisoning.

People may be exposed to unsafe levels of carbon monoxide as the result of:

- Using poorly maintained or unvented heating equipment
- “Warming up” vehicles in garages or other enclosed spaces
- Using a gas stove or oven to heat the home
- Clogged chimneys or blocked heating exhaust vents
- Running generators or gas-powered tools in enclosed areas or near windows, doors, or vents
- Activities near boat engine exhaust outlets

All people and animals are at risk for carbon monoxide poisoning. Unborn babies, infants, and people with chronic heart disease, anemia, or respiratory problems are generally more susceptible to its effects.

Breathing carbon monoxide can cause headache, dizziness and nausea. If carbon monoxide levels are high enough, a person may become unconsciousness or die.

Exposure to moderate and high levels of carbon monoxide over long periods of time has also been linked with increased risk of cardiovascular disease. Survivors of severe poisoning may suffer long-term neurological problems.

The health effects of long-term exposure to low levels of carbon monoxide are less well- understood. Better tracking of carbon monoxide poisoning and exposure may provide opportunities to learn about the effects of low-dose exposures.

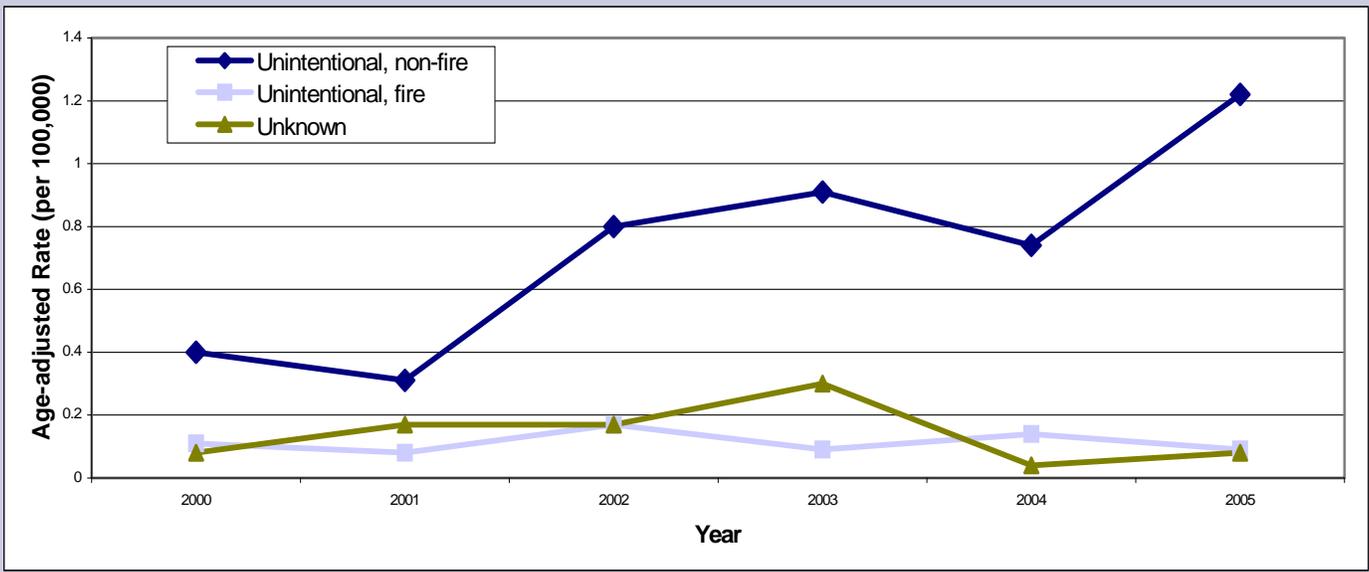
There are several things you can do to ensure you and your family are safe from carbon monoxide poisoning.

- DO have your heating system, water heater and any other gas, oil, or coal burning appliances serviced by a qualified technician every year.
- DO install a battery-powered CO detector (or electric-powered device with battery back-up) in your home, near all sleeping areas.
- DO seek prompt medical attention if you suspect CO poisoning and are feeling dizzy, light-headed, or nauseous.
- DO NOT use a generator, charcoal grill, or other gasoline or charcoal-burning device inside your home, basement, or garage, or near a window.
- DO NOT run a car or truck inside a garage attached to your house, even if you leave the door open.
- DO NOT burn anything in a stove or fireplace that isn’t vented, or may be clogged.
- DO NOT use a gas cooking range or oven to heat your home.

### Limitations:

- The use and quality of ICD-9-CM coding varies across jurisdictions.
- The toxic effects of CO exposure are nonspecific and easily misdiagnosed.
- Data do not include cases treated in an outpatient setting; those who call poison control centers and are managed at the scene and/or receive medical care but are not hospitalized; those who do not seek any medical care or those who die immediately from CO exposure without medical care.

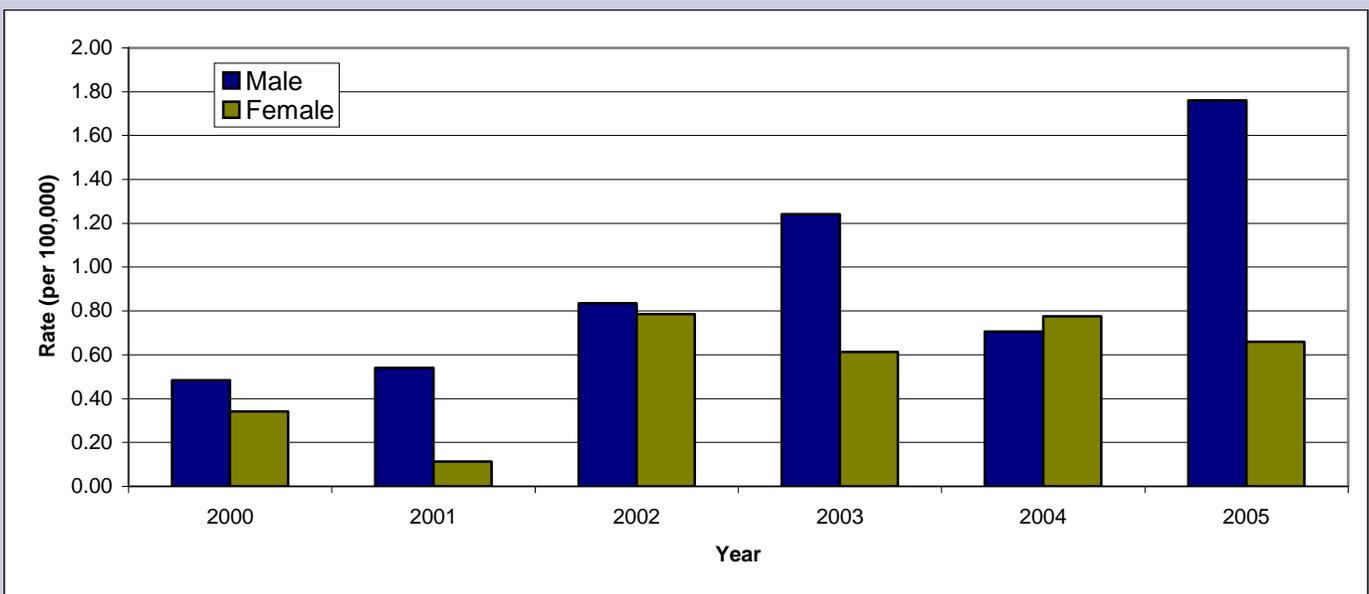
## Age-adjusted rates of hospitalization for CO poisoning, by fire-relatedness Connecticut 2000-2005



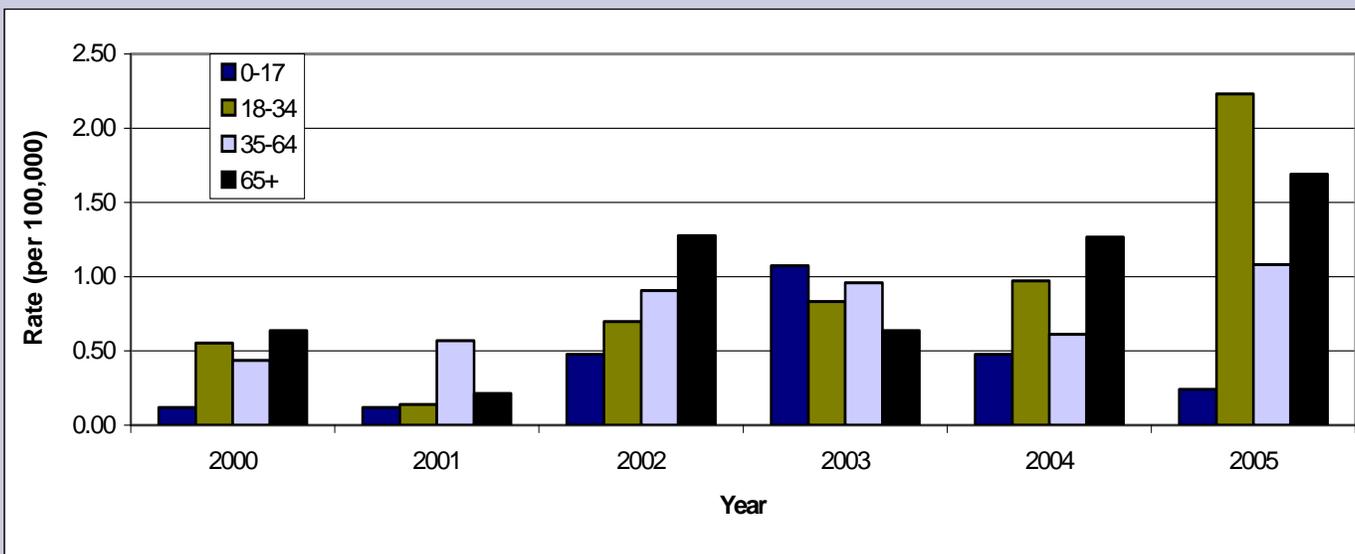
The rate of hospitalization for non-fire related CO poisonings increased between 2000 and 2004 while hospitalizations for unintentional fire-related poisonings and those with unknown intent remained relatively stable.

With respect to gender, males tended to have higher rates of hospitalizations for unintentional non-fire related CO poisonings. However, in 2004, the rate of hospitalizations among females was essentially the same as among males.

## Rate of hospitalization for unintentional non-fire related CO poisoning, by gender Connecticut 2000-2005



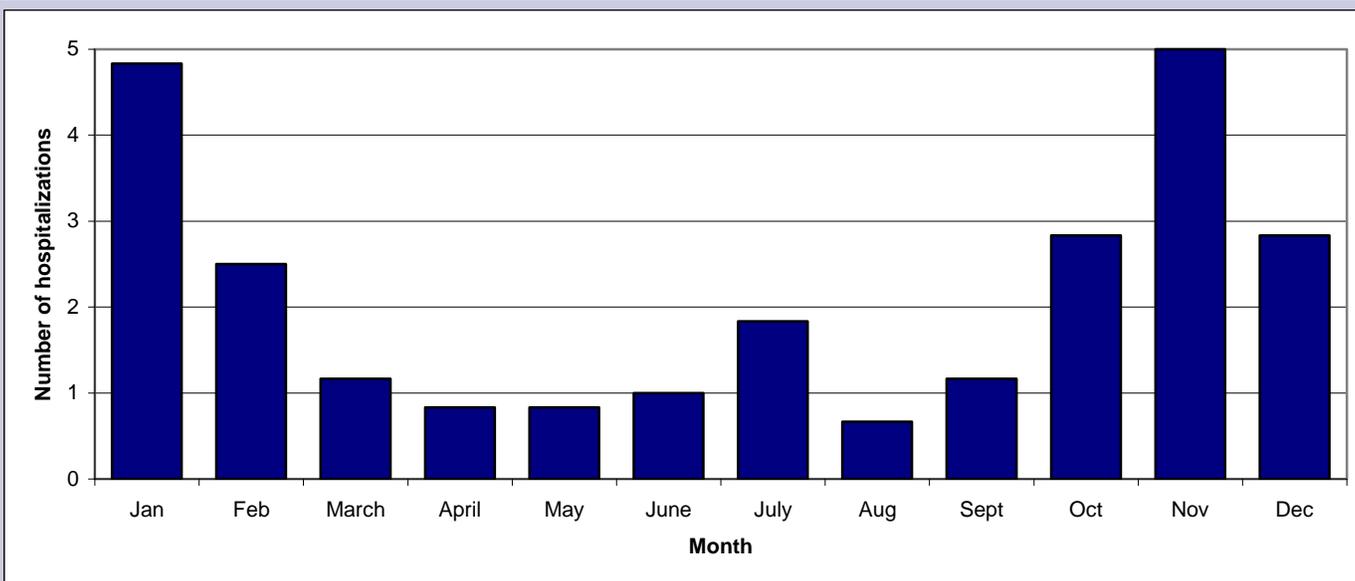
## Rate of hospitalizations for unintentional non-fire related CO poisoning, by age group Connecticut 2000-2005



The general trend observed was for the rate of hospitalization for unintentional CO poisoning to increase with increasing age. However, an exception to this was seen in 2003 when children ages 0-17 years old had the highest hospitalization rates.

The number of hospitalizations for unintentional non-fire related CO poisoning follows a seasonal pattern with the peak in winter. This coincides with the time that people are most likely to use alternative heating sources (such as space heaters) in their homes.

## Average number of hospitalizations for unintentional non-fire related CO poisoning, by month - Connecticut 2000-2005



## DATA TABLES

### Count and rate of hospitalization for unintentional CO poisoning, by fire-relatedness Connecticut 2000-2005

	Unintentional non-fire related			Unintentional fire-related			Unknown intent		
	Count	Crude Rate	Age-adjusted Rate	Count	Crude Rate	Age-adjusted Rate	Count	Crude Rate	Age-adjusted Rate
<b>2000</b>	14	0.41	0.4	4	0.12	0.11	3	0.09	0.08
<b>2001</b>	11	0.32	0.31	3	0.09	0.08	6	0.17	0.17
<b>2002</b>	28	0.81	0.8	6	0.17	0.17	6	0.17	0.17
<b>2003</b>	32	0.92	0.91	4	0.11	0.09	11	0.32	0.3
<b>2004</b>	27	0.77	0.74	5	0.14	0.14	2	0.06	0.04
<b>2005</b>	42	1.2	1.22	3	0.09	0.09	3	0.09	0.08

### Count and rate of hospitalization for unintentional, non-fire related CO poisoning, by gender Connecticut 2000-2005

	Male		Female	
	Count	Rate	Count	Rate
<b>2000</b>	8	0.48	6	0.34
<b>2001</b>	9	0.54	2	0.11
<b>2002</b>	14	0.83	14	0.79
<b>2003</b>	21	1.24	11	0.61
<b>2004</b>	12	0.71	15	0.78
<b>2005</b>	30	1.76	12	0.66

\* Rate per 10,000 population

### Count and rate of hospitalization for unintentional, non-fire related CO poisoning, by age-group Connecticut 2000-2005

	0-17		18-34		35-65		65+	
	Count	Rate	Count	Rate	Count	Rate	Count	Rate
<b>2000</b>	1	0.12	4	0.55	6	0.44	3	0.64
<b>2001</b>	1	0.12	1	0.14	8	0.57	1	0.21
<b>2002</b>	4	0.48	5	0.70	13	0.91	6	1.28
<b>2003</b>	9	1.07	6	0.83	14	0.96	3	0.64
<b>2004</b>	4	0.48	7	0.97	9	0.61	6	1.27
<b>2005</b>	2	0.24	16	2.23	16	1.08	8	1.69

\* Rate per 10,000 population

## DATA TABLES

Average number of hospitalizations for unintentional non-fire related CO poisoning, by month  
Connecticut 2000-2005

	Average # of Hospitalizations
January	4.8
February	2.5
March	1.2
April	0.8
May	0.8
June	1.0
July	1.8
August	0.7
September	1.2
October	2.8
November	5
December	2.8

### Useful Links

**CT DPH—Carbon Monoxide Resources**

<http://www.ct.gov/dph>

**CDC — Carbon Monoxide Poisoning Prevention Site**

<http://www.cdc.gov/CO>