

## Carbon Monoxide Poisoning Outbreak Following a Rare October Snowstorm—Connecticut, 2011

On October 29, 2011 a rare early-season snowstorm swept through the Northeast leaving over 860,000 Connecticut businesses and homes without power. Early inquiries to the Connecticut Poison Control Center and medical laboratories indicated a rise in Carbon Monoxide (CO) poisonings. This report identifies the types and number of events and the populations affected, as well as risk behaviors and awareness of public health warnings before and during the storm.

In Connecticut, CO poisoning is both physician and laboratory reportable to the Department of Public Health (DPH) for patients with a carboxy-hemoglobin level (COHb)  $\geq 9.0\%$ . Following the storm, the DPH initiated enhanced passive surveillance to track CO-related illness. Cases were defined as individuals meeting COHb reporting criterion and had exposure to a CO source due to loss of power from October 29–November 9. Using a standardized questionnaire, demographic and CO exposure event information was collected via phone interview. When necessary, medical record or death certificate review was also conducted.

The DPH collected 143 laboratory reports of CO poisoning during the study period compared to 16 reports from the previous 3 years combined. Data were collected on 134 individuals meeting the case definition. The majority of cases were male (58%) and the overall median age was 38 years old (range: 1–86). Non-Hispanic whites (NHW) accounted for 35% of cases, 29% were Hispanic, 17% Asian, 14% non-Hispanic black, and 5% other. The most frequent symptoms reported included headache (62%), dizziness (55%), nausea (49%), and fatigue (46%). The majority of those interviewed (56%) indicated having at least one severe symptom that included confusion, loss of consciousness, vomiting,

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shortness of breath, chest pain, or visual disturbances. Before emergency department discharge, oxygen therapy was received by 85 cases, 41 cases needed hospital admission or hyperbaric oxygen therapy; 5 CO poisoning deaths were reported by the medical examiner. Illnesses were a result of 72 distinct events all occurring by November 5<sup>th</sup> (81% between October 30–November 1). Urban settings accounted for 87% of CO poisoning events; 70% occurred in Hartford, Fairfield, and Litchfield counties corresponding well with the heaviest snowfalls.

The majority of events resulted from generator usage (53%, 2.1 persons per event) followed by charcoal or charcoal substitute (31%, 1.5 persons per event) and propane or kerosene heaters (8%, 1.8 persons per event). The most common exposure source by race/ethnicity was charcoal among Asians (73%), generator use among NHW (62%) and Hispanics (61%), and generator and charcoal among non-Hispanic blacks (50% each). Of the generator operators, 55% were first time users, 47% acquired the generator during or after the storm, and 63% used them inside the living space or an attached structure; 85% of charcoal users admitted to indoor placement. Charcoal use was 5.3 times more common among affected Asian households (8/11, 73%) than NHW households (4/29, 14%; 95% confidence interval: 2.0–14.0); overall 82% of

charcoal events took place in other-than NHW households.

Only 35% (21 of 60) of households associated with events who responded to CO detector inquiries reported having a detector in their home; 29% (6 of 21) stated the CO alarm did sound but several did not hear it due to the noise of the generator. Others only plugged the alarm into a generator after they thought there may be a problem in the house.

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### Editorial

Outbreaks of CO poisonings following winter storms are well documented and continue to be a problem. Connecticut's outbreak in October 2011 was one of the largest ever reported nationally (1). Although the state issued public health warnings of CO poisoning, most victims did not hear or see such warnings. Additionally, the Consumer Product Safety Commission (CPSC) requires CO poisoning warning labels on charcoal bags and portable generators. When discussing such warning labels, many charcoal users did not see these on the bags and believed that when the charcoal stopped smoking it would be safe to bring indoors. Charcoal warning labels may be misleading as they visually indicate people should not put smoking grills indoors, though CO is still produced after the coals have stopped smoking and continues until the coals are completely cooled. Similarly generator users felt that if they did not smell the exhaust they were safe, though admittedly most did not notice a warning label on the device. Racial/ethnic factors may also play a role as it has been noted that charcoal use in some racial/ethnic groups has been common in the past (2,3).

The lack of perceptible warnings to CO exposure (such as smoke or rotten egg smell) makes it difficult for people to know that they are at risk. Media warnings before and during severe weather events and CPSC warning labels do not seem to be enough. Well-targeted, well-timed

warning messages and outreach methods are needed to reach diverse populations.

### References

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2. Houck PM, Hampson NB. Epidemic carbon monoxide poisoning following a winter storm. *J Emerg Med* 197;15(4):469–473.
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## New Option for the Treatment of Latent Tuberculosis Infection

In December 2011, the Centers for Disease Control and Prevention (CDC) released recommendations on a new option for the treatment of latent tuberculosis (TB) infection (LTBI): <http://www.cdc.gov/mmwr/pdf/wk/mm6048.pdf>.

This new option uses a weekly regimen of 12 doses of isoniazid and rifapentine given by directly observed therapy. This recommendation was made after publication of a large randomized controlled trial and review of 2 other studies that showed this regimen to be as effective for preventing TB as the standard 9 month regimen using isoniazid alone and is more likely to be completed. This new regimen with fewer doses is one of the biggest advances in LTBI treatment in 40 years. This regimen is meant to serve as an additional option for LTBI treatment but does not replace other recommended regimens including isoniazid daily for 9 months.

The Connecticut Department of Public Health TB Control Program in conjunction with the Connecticut Advisory Committee on the Elimination of TB has issued its own guidelines for the use of this regimen in Connecticut, including instructions for how to obtain free medication for patients: <http://www.ct.gov/dph/lib/dph/INH-RPTinCTfinal.pdf>

All questions about this new regimen or any other TB-related issue can be directed to the TB Control Program at 860-509-7722.

## World TB Day—March 24, 2012

The Connecticut Department of Public Health (DPH) and public health officials across the nation recognize March 24th as World TB (Tuberculosis) Day. On this day in 1882, Dr. Robert Koch gave a historic lecture on “The Etiology of Tuberculosis” to the scientific community announcing that he had discovered the cause of tuberculosis, the TB bacillus. The slogan for this year is “Stop TB in My Lifetime.” Tuberculosis continues to be a major cause of morbidity and mortality. One third of the world’s population is currently infected with TB (defined as latent tuberculosis infection), with an estimated 10% of these developing active disease in their lifetime. A list of activities commemorating World TB Day can be found at: <http://www.cdc.gov/tb/events/WorldTBDay/2012/activities.htm>.

The TB Control Program works with healthcare providers and local health departments by monitoring for new cases, assuring completion of treatment, investigating and treating recently exposed contacts, and promoting screening for infection in a variety of settings with the goal of preventing the spread of TB. For more information, visit the DPH TB Control Program website at [www.ct.gov/dph](http://www.ct.gov/dph), click on Programs and Services, then select Tuberculosis.

### Expedited Partner Therapy

Expedited partner therapy (EPT) is the practice of treating the sex partners of persons diagnosed with chlamydia or gonorrhea infection without first examining or testing the partner. EPT helps interrupt the spread of disease by getting treatment to people who might otherwise remain untreated. Public Act 11-242 authorizes prescribing practitioners to prescribe or dispense antibiotics to treat chlamydia and/or gonorrhea infection in the sex partners of patients with chlamydia and/or gonorrhea infection. A practitioner who prescribes or dispenses antibiotics in this manner does not violate the practitioner's standard of care. The law defines a “prescribing practitioner” as a physician, dentist, podiatrist, optometrist, physician assistant, advanced practice registered nurse (APRN), nurse-midwife, or veterinarian licensed in Connecticut to

prescribe medicine within his or her scope of practice. For additional information, please see our website: [www.ct.gov/dph/std](http://www.ct.gov/dph/std).

EPT has been shown to be safe and effective in the treatment of sex partners. Research has demonstrated that EPT is effective in reducing reinfection of index case-patients infected with chlamydia or gonorrhea. Several states with long-standing EPT programs have had no reports of adverse events. If you would like to implement this in your clinical setting, please contact Heidi Jenkins, STD Program Coordinator, at 860-509-7920.

### Pneumococcal Conjugate Vaccine Effectiveness Study

In the United States, invasive (sterile site) pneumococcal disease (IPD) is the most common cause of meningitis, pneumonia and otitis media, and a common cause of blood stream infections in children. Each year approximately 4,000 cases of IPD, mostly bacteremia and meningitis, occur in children < 5 years old. In 2000, the Food and Drug Administration licensed a 7-valent pneumococcal conjugate vaccine (PCV7) for use in children at 2, 4, 6, and 12-15 months of age (1). The vaccine consists of polysaccharides of the 7 serotypes that caused 80% of invasive disease in children aged <5 years before vaccine introduction. PCV7 was licensed, in part, based on the results of randomized controlled trials showing the vaccine to be 93.9% (95% CI 79.6-98.5%) effective against invasive disease caused by serotypes in the vaccine (2). Following PCV7 introduction, overall rates of IPD among children <5 years old declined by 80%, with rates caused by serotypes included in PCV7 declining by >99% (1).

While rates of PCV7-type IPD declined dramatically following PCV7 introduction, rates of IPD caused by some serotypes not included in PCV7, especially serotype 19A, increased since PCV7 introduction. The extent to which these increases in non-PCV7 serotype IPD are causally related to PCV7 introduction is unknown. A new 13-valent pneumococcal conjugate vaccine (PCV13), which includes serotype 19A, was licensed in February 2010. Although PCV7 was licensed, in part, based on results of randomized controlled trials, no

such trials have been conducted for PCV13. Instead, PCV13 was licensed on the basis of immunogenicity and safety data (1). Post-licensure evaluation of PCV13 effectiveness is important to ensure that the vaccine performs as expected among children who receive it.

As part of the Connecticut Department of Public Health, Active Bacterial Core Surveillance (ABCs) project of the Emerging Infections Program, Connecticut is currently participating in a PCV13 effectiveness study. The primary objective of the study is to measure the effectiveness of 1 or more doses of PCV13 against IPD caused by PCV13 serotypes among children receiving PCV13 as part of the routine immunization schedule.

Eligible cases include Connecticut residents <5 years of age with confirmed IPD and an isolate available for serotyping. Parents and physicians of cases are surveyed to assess vaccine history and risk factors for disease. Controls include 4 children per case matched on age and zip code of residence. Study enrollment began on June 1, 2010. To date, 20 (83%) of 24 eligible cases have been enrolled along with 69 controls. Enrollment is ongoing and is expected to continue through 2013. Questions regarding this study can be directed to the Epidemiology and Emerging Infections Program at (860) 509-7994.

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1. CDC. Prevention of pneumococcal disease among infants and children – Use of 13-valent pneumococcal conjugate vaccine and 23-valent pneumococcal polysaccharide vaccine. MMWR 2010;59:1-18.
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**Summary of Tuberculosis Cases—  
Connecticut\*, 2011**

	n= 83
Classification	No. (%)
Age (years):	
<5	2 (2)
5-14	1 (1)
15-24	11 (13)
25-44	36 (43)
45-64	24 (29)
≥65	9 (11)
Race/Ethnicity:	
Asian	31 (37)
Black	17 (21)
Hispanic	19 (23)
White	16 (19)
Gender:	
Male	40 (48)
Female	43 (52)
Birth Origin:	
U.S. and Territories	18 (22)
Other Nations (26 different Nations)	65 (78)
Pulmonary cases	63 (76)
HIV positive	7 (8)
Multi-drug resistant (resistance to at least isoniazid and rifampin)	1 (1)
Birth Nations with more than 5 Cases:	
India	10
Haiti	7
Philippines	6
	Rate**
Towns with ≥5 cases	
Danbury	8 (9.9)
Stamford	8 (6.5)
Bridgeport	7 (4.8)
New Haven	5 (3.8)

\*Cases were reported from 39 towns.

\*\* Rate per 100,000 population.

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