

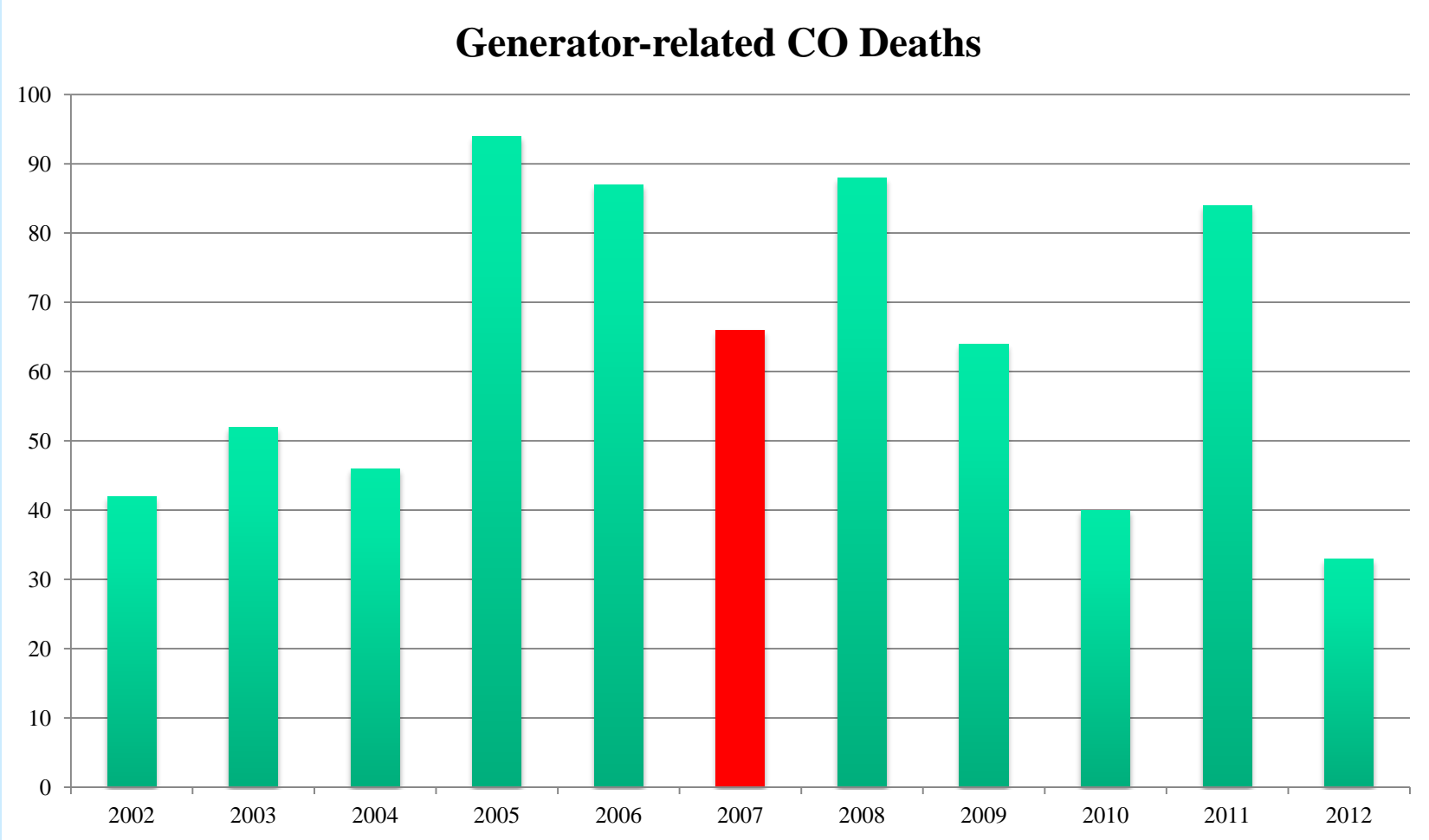
# Accidental Carbon Monoxide Poisoning from Portable Electric Generators: A Nationwide Series of 264 Cases.



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## I BACKGROUND

Specific sources of carbon monoxide (CO) poisoning remain common in the US, with over 800 accidental deaths due to exposure to portable, gasoline-powered, electrical generator exhaust from 1999 to 2012. A CO warning label mandated by the US Consumer Product Safety Commission (CPSC) in 2007 to be placed on all new generators sold appears to have had minimal effect.



The CPSC has now ordered Underwriter’s Laboratory to develop a new standard for generators to mitigate this problem. Because most data collected and reported in this area are mortality figures, description of the group referred for hyperbaric oxygen therapy nationally was performed to further define the population at risk and estimate the magnitude of the problem.

## II METHODS

Unidentifiable information about patients treated across the US with hyperbaric oxygen for acute CO poisoning was prospectively reported by participating centers online to a central data repository in real time fashion. The collection period lasted from 8/1/08-7/31/11. Those patients poisoned by portable generators were selected for analysis.

## III RESULTS

Of 1,907 CO-poisoned patients reported over 3 years, 1,604 were exposed accidentally, with portable generators the source of CO in 264. These 264 were poisoned in 146 incidents in 33 states (see map below). Number poisoned per incident ranged from 1-10.



Gender	Male 146 (55%)
Age	37 ± 20 years
Race/Ethnicity	Non-Hispanic White 155 (45%) Black 57 (22%) Hispanic White 52 (20%) Asian 4 (2%) Native American 4 (2%)
Primary Language	English 228 (86%) Spanish 26 (10%) Vietnamese 2 (1%) Unknown 8 (3%) Spoke English 253 (96%)

Activity	Domestic 101 incidents
	Work 34
	Recreation 5
Symptoms	Headache 62% Dizziness 52% LOC 50% Nausea/vomiting 49% Confusion 27%
Intubation	18 (7%)
Carboxyhemoglobin	22.7 ± 9.0% (range 2.3% to 43%)
Cardiac Ischemia	36 (14%)

## IV CONCLUSIONS

1. A total of 264 patients in the US were reported to have been treated with HBO<sub>2</sub> for generator-related CO poisoning over 3 years.
2. Since it is estimated that the online reporting system captured about 43% of all HBO<sub>2</sub> treated patients, it is likely that approximately 205 patients are treated with HBO<sub>2</sub> for this form of CO poisoning annually.
3. If one accepts that approximately 5% of the CO-poisoned population receives HBO<sub>2</sub>, extrapolation yields an estimate for 4,000 patients poisoned by CO from portable generators each year.