220 Evaluation of the Michigan Carbon Monoxide Surveillance System, 2009-2011

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Michelle E. Marchese , *Michigan Department of Community Health, Lansing, MI*
Robert L. Wahl , *Michigan Department of Community Health, Lansing, MI*
Lorraine Cameron , *Michigan Department of Community Health, Lansing, MI*
Kenneth Rosenman , *Michigan State University, East Lansing, MI*

BACKGROUND: Carbon monoxide (CO) poisoning is preventable, yet it is a leading cause of unintentional poisoning in the United States. To identify which communities are most affected by CO poisoning and to determine the circumstances under which CO poisonings occur, the Michigan Department of Community Health (MDCH) mandated that health care providers and facilities report all CO poisoning cases. Since 2009, Michigan State University (MSU) has been designated the bona fide agent of MDCH to collect CO poisoning records from all Michigan hospitals, the Michigan Poison Control Center (PCC) and the MDCH Division for Vital Records and Health Statistics. The CSTE CO Workgroup defines a CO poisoning event as a carboxyhemoglobin level greater than 12% or upon identification of an environmental source of CO. In contrast, the Michigan CO Surveillance System defines CO poisoning events by physician-diagnosed ICD9 codes or as identified by the PCC.

METHODS: MDCH and the MSU Department of Medicine analyze the CO poisoning data by demographics, source of CO poisoning and carboxyhemoglobin concentration. Following the 2001 MMWR article, "Updated Guidelines for Evaluating Public Health Surveillance Systems," we evaluated the Michigan CO Surveillance System for the years 2009-2011.

RESULTS: Strengths of the Michigan CO Poisoning Surveillance System are its simplicity and acceptability, flexibility, representativeness, timeliness and stability. Depending on the parameter, data quality ranges from almost 100% complete for age and gender, to 70-80% complete for source of exposure and smoking status, to 49% complete for race. Overall, the Michigan surveillance system has a high sensitivity, but the lack of inclusion of carboxyhemoglobin in the case definition may reduce its specificity. Following the Michigan definition, CO poisonings average 10 events per 100,000 population compared to 3 events per 100,000 population if Michigan used the CSTE CO workgroup definition.

CONCLUSIONS: The Michigan CO Surveillance System is providing useful, timely information on CO poisonings. The Michigan definition for CO poisoning is more sensitive than the CSTE definition; it catches both severe and mild poisoning incidents. Using this information, we recommend implementing preventive measures to reduce CO incidence: increasing awareness of the hazards of CO poisoning through radio and TV ads, promoting annual furnace and water heater checkups and giving CO information sheets with the purchase of a generator or other fossil fuel consuming device.