New York Hazardous Substances Emergency Events Surveillance: Learning from Hazardous Substances Releases to Improve Safety

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Abstract

Since 1993, the New York State Department of Health, funded by the Agency for Toxic Substances and Disease Registry, has collected data about non-petroleum hazardous substances releases through the Hazardous Substances Emergency Events Surveillance (NYHSEES) project. This study investigates risk factors for hazardous substances releases that may result in public health consequences such as injury or reported health effects. The 6,428 qualifying events that occurred during the ten-year period of 1993-2002 involved 8,838 hazardous substances, 842 evacuations, more than 75,419 people evacuated, and more than 3,120 people decontaminated. These events occurred both at fixed facilities (79%) and during transport (21%). The causative factors most frequently contributing to reported events were equipment failure (39%) and human error (33%). Five of the ten chemicals most frequently associated with injuries were also among the ten chemicals most frequently involved in reported events: sulfuric acid, hydrochloric acid, ammonia, sodium hypochlorite and carbon monoxide. The chemical categories most frequently associated with events, and with events with adverse health effects were volatile organic compounds and solvents, and acids. Events with releases of hazardous substances were associated with injuries to 3,089 people including employees (37%), responders (12%), the general public (29%), and students (22%). The most frequently reported adverse health effects were respiratory irritation, headache, and nausea or vomiting. Most of the injured were transported to the hospital, treated, and released (55%) or treated at the scene (29%). These data have been used for emergency response training, planning and prevention activities to reduce morbidity and mortality from future events.

Keywords: hazardous substances, chemicals, emergency response, local emergency planning committees (LEPCs), responder injuries