Every year a myriad of hazardous substances releases occur which result in various adverse public health consequences, including injuries and deaths. From 1990-2009, the Hazardous Substance Emergency Events Surveillance (HSEES) system, established by the Agency for Toxic Substances Disease Registry (ATSDR), collected and analyzed information about acute releases of hazardous substances. We use data from HSEES to describe the public health consequences of hazardous substance releases.

Using data from 17 participating states, this analysis describes the public health consequences of HSEES events involving the most commonly released chemicals in manufacturing industries. We focus on incidents involving a single chemical release only.

During 2001-2008, 23,585 manufacturing industry single chemical events occurred. Releases of ammonia, sulfur dioxide, vinyl chloride, benzene or nitric oxide were 18.7% (4415) of those events. These five chemicals caused over 39% of the evacuations ordered in manufacturing industries (357 of the 893 manufacturing events with ordered evacuations). In addition, these chemicals were responsible for over 34% of the total people evacuated (25,110 of 73,421). Over 20% (157 out of 779) of the events in the manufacturing industry with victims were attributed to these chemicals. Of the 3,071 individuals injured in the manufacturing industry, ammonia, sulfur dioxide, and vinyl chloride were responsible for over 17% (552). Employees were the most commonly reported group injured. Respiratory irritation was the most frequently reported injury. In the manufacturing industry ammonia was the chemical most frequently reported in events with evacuations or victims. Ammonia releases resulted in the highest number of people injured and of people evacuated in events associated with the manufacturing industry.

Increased awareness of the public health consequences of the most commonly released chemicals in the manufacturing industry can influence the development of educational initiatives. Furthermore, it could lead to the development of preventative efforts targeting the chemicals that have the greatest impact on public health.