

Toxic Substance-Related Illness

Agent: Multiple, including pesticides, heavy metals (e.g., lead, cadmium, mercury, arsenic), occupational dusts or fibers (e.g., coal, silica, asbestos), gases (e.g., carbon monoxide, methane) or radioactive materials.

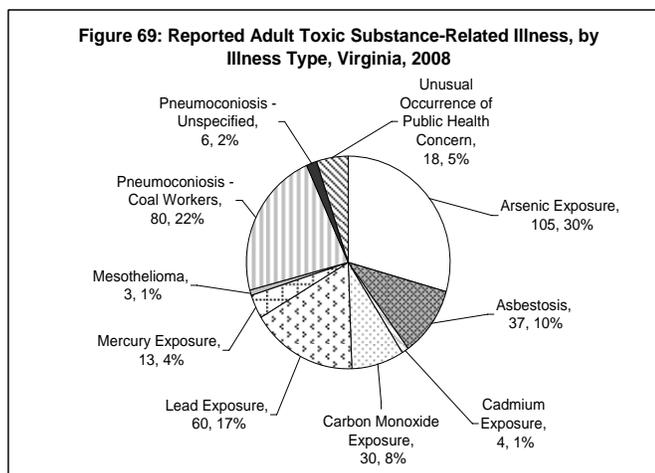
Mode of Transmission: Varies depending on agent; can include absorption through skin, ingestion, or inhalation.

Signs/Symptoms: Varies depending on agent, dose of exposure, and duration of exposure. Chronic occupational dust or fiber exposure may increase the risk of lung cancer, mesothelioma and nonmalignant lung disorders. Heavy metals, gases and pesticides may damage nervous, digestive, or reproductive systems.

Prevention: Do not eat, drink, or smoke in contaminated work areas. Wash hands and face after contacting toxic materials; after working with potential toxic substances, shower and change clothes at work, if possible. Always follow safety guidelines and requirements.

Other Important Information: Improving public and healthcare professional awareness and recognition of various toxic substance exposures can help reduce subsequent illness.

During 2008, 356 cases of toxic substance-related illness were reported in Virginia. An incidence of exposure is based on a physician's diagnosis or on a laboratory finding above expected normal values. The three most frequently reported toxic substance-related illnesses were arsenic exposure, pneumoconiosis, and lead exposure (Figure 69). Additional toxic substance-related illness reported during 2008 included mesothelioma and



exposures to asbestos, cadmium, carbon monoxide, and mercury. In addition, occurrence of illness from exposure to rarely reported substances were captured. These unusual occurrences of public health concern included exposures to combustion products, ethylene glycol, ethyl alcohol, difluoroethane, herbicide, methanol, toxic inhalants/volatile substances, lye, and selenium. Many of these exposures were reported from death certificates.

The number of cases of arsenic exposure increased nearly six-fold from 2007 to 2008 going from 18 to 105 cases, respectively. This increase in reported arsenic exposure was the result of additional submissions of electronic laboratory reports for individuals with arsenic levels above normal laboratory values. Most of the arsenic reports resulted from elevated blood or urine levels for total arsenic. Further speciation for the more dangerous form of inorganic arsenic was not provided. Among other frequently reported conditions, 86% of those reported with pneumoconioses worked in the coal mining industry, and of

these reported cases, 30% died from this condition. Among those with lead exposures, 37% worked in battery manufacturing. Those with reported carbon monoxide exposures worked in various industries. However, all but one of the exposures were reported from death certificates, and most resulted from accidental fires or deliberate exposure to vehicle exhaust. Although asbestosis accounted for 10% of all toxic substance related-illness in 2008, the number of reported cases has dropped steadily in the past decade. The average age reported for asbestosis was 79 years, which is reflective of the disease occurring in the population who had exposure before regulatory standards and guidelines became effective.

Among all toxic exposures, the highest percentage of cases (36%) occurred in the 60 year and over age group with an incidence rate of 10.0 per 100,000. Race information was not reported for 51% of all toxic substance-related cases. Where race information was provided, the white population had the highest incidence (2.7 per 100,000), followed by the black population (1.3 per 100,000). Eighty-six percent of all cases occurred in males and the incidence was more than six times that of females (8.1 and 1.2 per 100,000, respectively). The southwest region, where coal and battery manufacturing industries are concentrated, accounted for 38% of reported exposures and had an incidence of 10.2 per 100,000. Other regions of the state had incidence rates ranging from 1.6 to 5.1 per 100,000.

Children with exposure to lead are not discussed in this section. For this information, see the “Lead - Elevated Blood Levels in Children” section.