

Lead - Elevated Blood Levels in Children

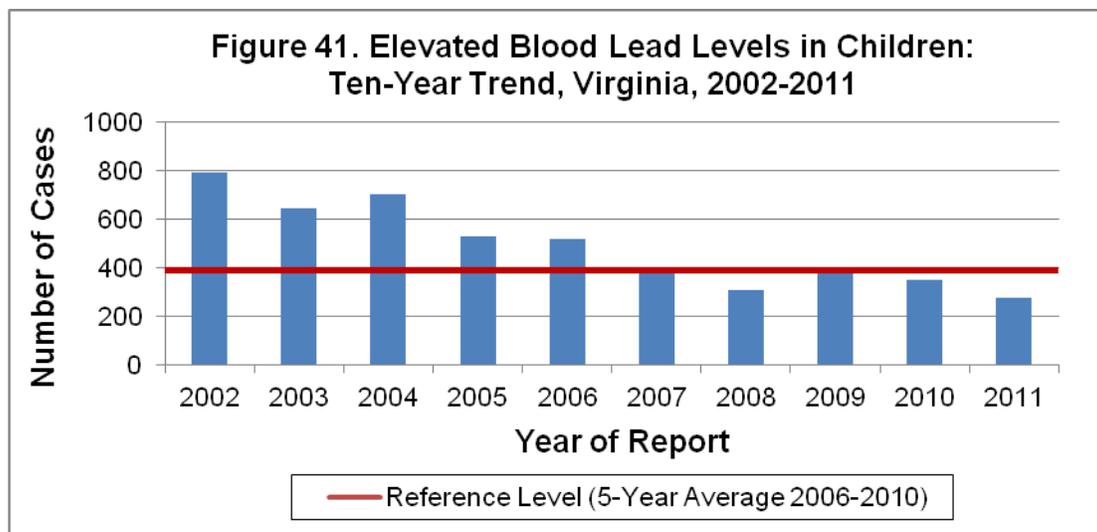
Agent: Lead (metal)

Mode of Transmission: Chewing objects painted with lead paint; ingestion of contaminated dust, soil or water; or using glassware, healthcare products or folk remedies containing lead.

Signs/Symptoms: Even at low levels, lead in children can cause nervous system damage, learning disabilities, behavior problems, muscle weakness, decreased growth, hearing damage, or anemia.

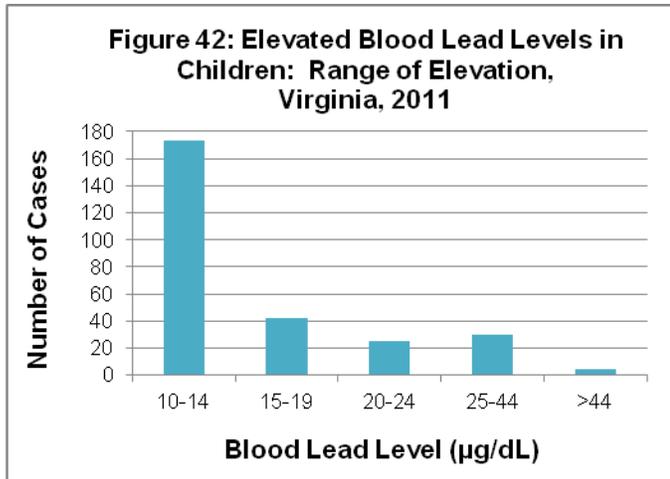
Prevention: Ingestion of lead-contaminated materials and use of lead-containing objects should be avoided. Education of healthcare professionals and parents is important in detecting and reducing lead exposure.

Other Important Information: The primary source of lead for children is exposure to deteriorated paint in housing built before 1978. There is a need for increased awareness of additional sources of lead exposures, including improper renovation of older homes; imported toys manufactured with lead paints or components; candies popular among some ethnic groups; traditional Hispanic, Indian, and Middle Eastern folk remedies; and ceramics from foreign countries which use lead glazes.



Elevated blood lead levels of ≥ 10 micrograms per deciliter ($\mu\text{g}/\text{dL}$) are reportable in children aged 15 years or younger in Virginia. In 2011, there were 274 newly reported cases of elevated blood levels in children. This is a 22% decrease from the 350 cases reported in 2010, and a 30% decrease from the five-year average of 391.0 cases per year (Figure 41). While the overall number of reported cases has declined since 2002, the lower figures are the result of both lower incidence and better data quality. The continued improvement in reporting of specimen type (e.g., capillary or venous) by physicians and laboratories has enhanced interpretation of test findings, reduced ambiguity, and yielded more accurate information on the number of children with confirmed elevated blood lead levels.

Based on the guidance in place in 2011, blood lead levels in the 10-14 $\mu\text{g}/\text{dL}$ range were considered above normal, but only required lead awareness education and follow-up monitoring. Blood lead levels in the 15-19 $\mu\text{g}/\text{dL}$ range required nutritional and environmental education, as well as additional testing to ascertain if the blood lead level was increasing or remained elevated. Blood lead levels greater than 20 $\mu\text{g}/\text{dL}$ required greater degrees of case



management, the initiation of an environmental investigation to identify and eliminate lead hazards, and the possibility of medical intervention. Among the 274 children reported with elevated blood lead levels in 2011, 173 (63%) had confirmatory blood lead levels in the 10-14 $\mu\text{g}/\text{dL}$ range, 42 (15%) had levels in the 15-19 $\mu\text{g}/\text{dL}$ range, 25 (9%) had levels in the 20-24 $\mu\text{g}/\text{dL}$ range, 30 (11%) had levels in the 25-44 $\mu\text{g}/\text{dL}$ range, and 4 (1%) had a level above 44 $\mu\text{g}/\text{dL}$ (Figure 42).

By age, the majority (93%) of elevated blood lead levels and the highest incidence rate occurred in those aged 1-9 years (254 cases, 27.6 per 100,000), followed by infants (10 cases, 10.0 per 100,000). Rates were lower in 10-15 year olds (1.6 per 100,000). Fifty-five percent of reports were missing race data. However, among reports with race information, the black population had an incidence rate five times that of the white population (18.1 versus 3.6 per 100,000, respectively), while the “other” race population had an intermediate incidence rate of 8.6 per 100,000. Males had a slightly higher incidence rate than females (17.2 and 16.2 per 100,000, respectively). Statewide incidence for children less than sixteen years of age was 16.7 per 100,000. Geographically, the central region had the highest incidence (34.6 per 100,000) while the remaining regions had rates ranging from 8.1 to 18.9 per 100,000.