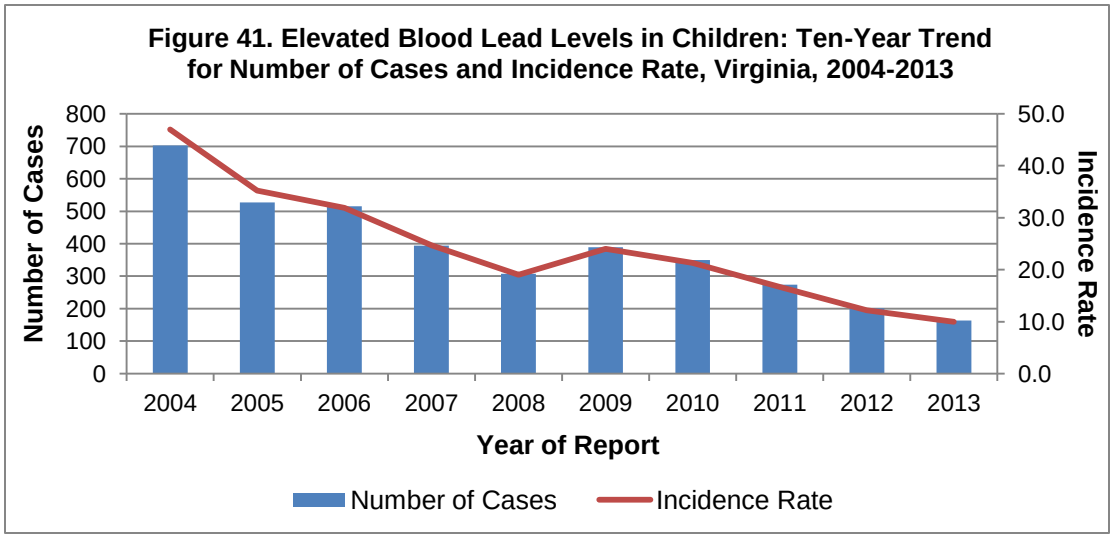
Lead - Elevated Blood Levels in Children

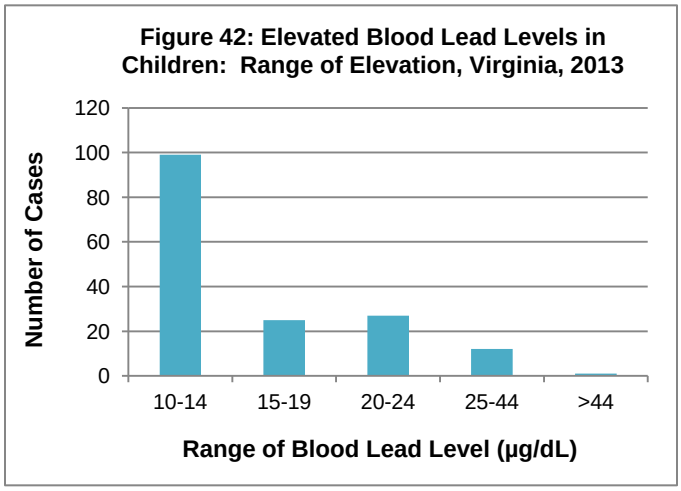
Agent: Lead (metal)
Mode of Transmission: Chewing objects painted with lead paint; ingesting contaminated soil, food, or water; inhaling contaminated air or dust; or using glassware, healthcare products or folk remedies containing lead.
Signs/Symptoms: Even at low levels, lead in children can cause nervous system damage, learning disabilities (decreases in intelligence quotient, attention deficit hyperactivity disorder), behavior problems (withdrawn behavior, issues with sociability), muscle weakness, decreased growth, delays in puberty, hearing damage, or anemia. Children who ingest large amounts of lead can develop kidney and brain damage. Furthermore, children can appear healthy despite having high levels of lead in their blood.
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. Some recommendations for parents include refraining children from playing in bare soil and providing them with sandboxes; cleansing children's hands and faces often in order to eliminate lead dust and soil; and having children tested for lead as a general precaution.
Other Important Information: Children are more sensitive than adults to the toxic effects of lead. There is no proven safe level of lead in blood. Elevated blood lead levels at or above 10 micrograms per deciliter (μg/dL) are reportable in children aged 15 years or younger in Virginia. 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 that use lead glazes.

Lead – Elevated Levels in Children: 2013 Data Summary	
Number of Cases:	164
5-Year Average Number of Cases:	304.2
% Change from 5-Year Average:	-46%
Incidence Rate per 100,000:	10.0

In 2013, there were 164 newly reported cases of elevated blood lead levels in children. This is an 18% decrease from the 201 cases reported in 2012, and a 46% decrease from the five-year average of 304.2 cases per year (Figure 41). The overall decline in the number of reported cases since 2004 is 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 2013, blood lead levels in the 10-14 µg/dL range were considered above normal, but only required lead awareness education and follow-up monitoring. Blood lead levels in the 15-19 µg/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 µg/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 164 children reported with elevated blood lead levels in 2013, 99 (60%) had confirmed blood lead levels in the 10-14 µg/dL range, 25 (15%) had levels in the 15-19 µg/dL range, 27 (16%) had levels in the 20-24 µg/dL range, 12 (7%) had levels in the 25-44 µg/dL range, and 1 (<1%) had a level above 44 µg/dL (Figure 42).



By age, the majority (95%) of elevated blood lead levels and the highest incidence rate occurred in those aged 1-9 years (155 cases, 16.7 per 100,000), followed by infants (5 cases, 5.0 per 100,000). Rates were lower in 10-15 year olds (0.6 per 100,000). Fifty-two percent of reports were missing race data. However, among reports with race information, the black population had an incidence rate more than twice that of the white population (8.7 versus 3.2 per 100,000, respectively), while the "other" race population had an intermediate incidence rate of 6.8 per 100,000. Males and females had similar incidence rates (10.3 and 9.4 per 100,000, respectively). Geographically, incidence rates ranged from a high of 13.4 per 100,000 in the northwest region to a low of 5.8 per 100,000 in the northern region, resulting in a statewide incidence rate of 10.0 per 100,000

for children less than sixteen years of age. As seen in the incidence map below, no cases of elevated blood lead levels in children were reported from many of the localities in southwestern Virginia.