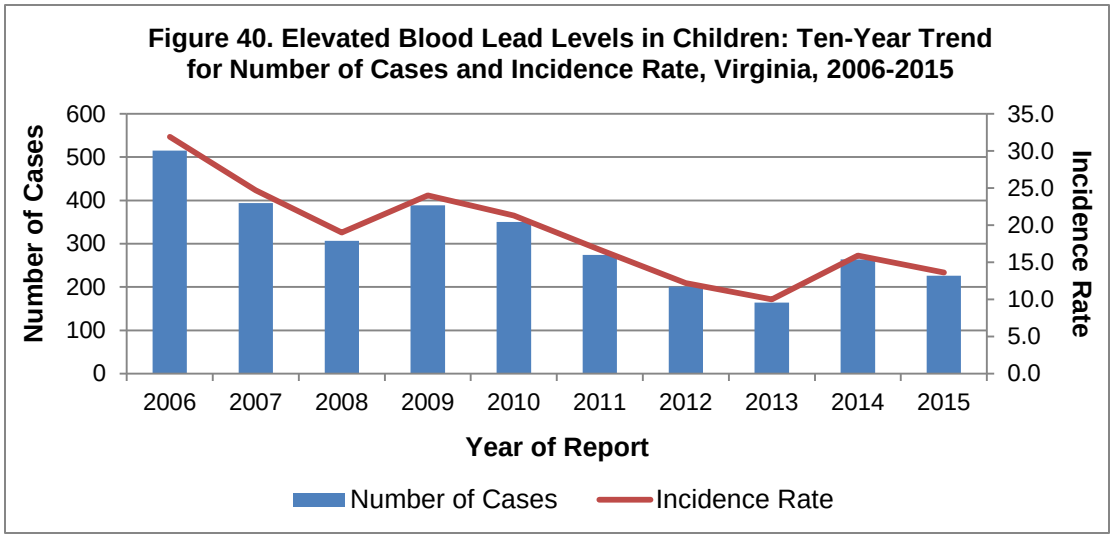
Lead - Elevated Blood Levels in Children

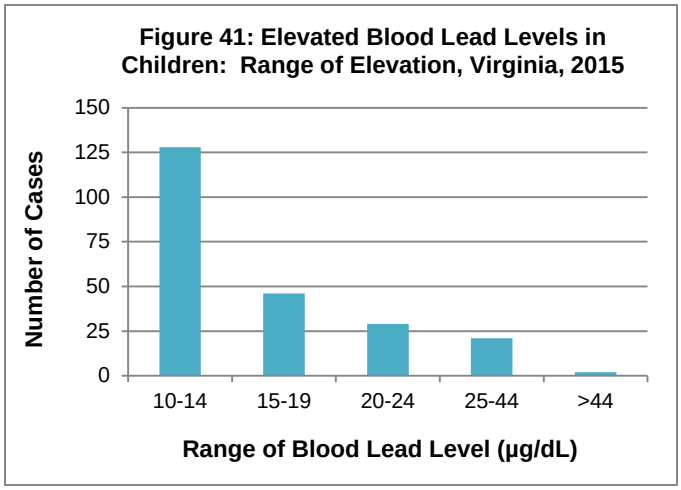
Agent: Lead (soft, dense metal)
Mode of Transmission: The primary source of lead poisoning in children is flaking, dusting lead paint found in buildings built before 1978. Lead intake can happen through chewing objects painted with lead paint; ingesting contaminated soil, food, or water; inhaling contaminated air or dust; or using glassware, healthcare products or folk remedies containing lead.
Signs/Symptoms: Even at low levels, lead in children can cause reduced Intelligence Quotient (IQ), hyperactivity, reduced stature, reduced hearing, and headaches. Nervous system damage, learning disabilities (e.g. attention deficit hyperactivity disorder), behavior problems (withdrawn behavior, issues with sociability), muscle weakness, decreased growth, delayed puberty, and anemia can also be attributed to elevated blood lead levels. Children who ingest large amounts of lead can develop kidney and brain damage. Furthermore, children can appear healthy despite having elevated 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 testing your home and water for lead, precautionary lead testing in young children, and washing children's hands, faces and toys often in order to eliminate lead dust and soil. Parents who have an occupation or hobby that might involve lead should wear personal protective equipment, shower after working with lead, and avoid bringing lead-contaminated materials into the home. Children should be kept away from any home renovations involving the sanding or scraping of paint.
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. In 2015, elevated blood lead levels at or above 10 micrograms per deciliter (μg/dL) were reportable in children aged 15 years or younger in Virginia. 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 folk remedies used in some cultures; and ceramics from foreign countries that use lead glazes.

Lead – Elevated Levels in Children: 2015 Data Summary	
Number of Cases:	226
5-Year Average Number of Cases:	250.6
% Change from 5-Year Average:	-10%
Incidence Rate per 100,000:	13.6

In 2015, 226 newly reported cases of elevated blood lead levels in children were reported in Virginia. This represents a 14% decrease from the 264 cases reported in 2014, and a 10% decrease from the five-year average of 250.6 cases per year (Figure 40). All incidence rates for children with elevated blood lead levels are based on population



figures for children age 0-15 years. Blood lead results on approximately 74,000 children were received by VDH in 2015. 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 guidance in place in 2015, 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 persistently elevated. Blood lead levels equal to or 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 226 children reported with elevated blood lead levels in 2015, 128 (57%) had confirmed blood lead levels in the 10-14 µg/dL range, 46 (20%) had levels in the 15-19 µg/dL range, 29 (13%) had levels in the 20-24 µg/dL range, 21 (9%) had levels in the 25-44 µg/dL range, and 2 (<1%) had a level above 44 µg/dL (Figure 41).

By age group, the majority (91%) of elevated blood lead levels and the highest incidence rate occurred in those aged 1-9 years (205 cases, 22.0 per 100,000), followed by infants (18 cases, 17.5 per 100,000). Rates were lowest among those 10-15 years of age (0.5 per 100,000). Race was not provided for 45% of the cases. Among those with a known race,

incidence among the "other" race population was the highest (18.8 per 100,000), followed by the black population (13.0 per 100,000). The white population had the lowest incidence rate (4.2 per 100,000). Incidence rates among males and females were similar (14.0 and 13.2 per 100,000, respectively). Geographically, incidence rates ranged from 19.5 per 100,000 in the central region to 10.2 per 100,000 in the northwest region, resulting in a statewide incidence rate of 13.6 per 100,000 in children less than sixteen years of age. Incidence rates by locality can be seen in the map below.

Lead - Elevated Blood Levels in Children
Incidence Rate by Locality, Virginia, 2015