

CDC's Recommended Terminology When Discussing Children's Blood Lead Levels

No safe level of lead in children's blood has been identified. Therefore, the Centers for Disease Control and Prevention (CDC) does not use the term "elevated blood lead levels" when recommending what actions to take based on a child's blood lead level (BLL). CDC encourages healthcare providers, public health professionals, and others to follow CDC's [recommended actions based on blood lead level](#) when initiating follow-up actions and case management for children with lead in their blood

Health Effects of Childhood Lead Exposure

- Even low levels of lead in the blood have been shown to cause learning difficulties, behavior problems, and other cognitive effects.¹
- Studies have also suggested that low levels of lead in the blood can also result in cardiovascular², immunological³, and endocrine effects⁴.
- The adverse health effects of lead exposure can be permanent.

Blood Lead Reference Value

- Beginning in 2012, CDC began using a population-based [blood lead reference value](#) (BLRV) to identify children with higher levels in their level compared to most children.
 - ♦ This reference level is based on the 97.5th percentile of the blood lead values among U.S. children ages 1–5 years, according to data from the [National Health and Nutrition Examination Survey \(NHANES\)](#).
 - ♦ In 2012, the BLRV was established to be 5 micrograms per deciliter ($\mu\text{g}/\text{dL}$) based on NHANES data from 2007–2010. In 2021, the BLRV was updated to 3.5 $\mu\text{g}/\text{dL}$ based on NHANES data from 2015–2018.
 - ♦ The BLRV is a population-based screening tool and should not serve as a health-based threshold. Children with BLLs at or above the BLRV represent those at the top 2.5% with the highest BLLs.



Previous Definitions for Interpreting Childhood Blood Lead Levels

Year	Blood lead level ($\mu\text{g}/\text{dL}$)	Interpretation*
1960	60	Not applicable
1970	40	Undue or increased lead absorption
1975	30	Undue or increased lead absorption
1978	30	Elevated blood lead level
1985	25	Elevated blood lead level
1991	10	Level of concern
2012	5	Reference value
2021	3.5	Reference value

*<https://stacks.cdc.gov/view/cdc/61820>



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

Interpreting Children's Blood Lead Levels

As no safe level of lead in children's blood has been identified, a BLL threshold should not be used to determine follow-up and case management actions. CDC recommends that healthcare providers, public health professionals, and others initiate follow-up actions based on [CDC's Recommended Actions Based on Blood Lead Level](#).

Steps can be taken to prevent further exposure and mitigate the harmful effects of lead exposure for children with any amount of lead in their blood. See CDC's [Lead Poisoning Prevention web page](#) for more information.

Several factors can affect how a child's body handles exposure to lead. These include the

- Child's age
- Nutritional status
- Source of lead exposure
- Length of time the child was exposed
- Presence of other underlying health conditions

Alternative terms for discussing children's blood lead levels

- "blood lead levels greater than ____ $\mu\text{g}/\text{dL}$ "
- "blood lead levels greater than most children"
- "blood lead levels above CDC's BLRV"
- "blood lead levels above the state's level that triggers follow-up care"

Note: As of July 2022, the Council of State and Territorial Epidemiologists (CSTE) updated their position statement for lead. This position statement updates 15-EH-01 by changing the name of the condition under surveillance from "elevated blood lead level" to "lead in blood" and updating the criteria for reporting, the case definition, and case classifications.



References

1. Lanphear BP, Hornung R, Khoury J, Yolton K, et al. Erratum: "Low-Level Environmental Lead Exposure and Children's Intellectual Function: An International Pooled Analysis". *Environ Health Perspect*. 2019;127(9):99001. Erratum for: *Environ Health Perspect*. 2005 Jul;113(7):894—9.
2. Navas-Acien A, Guallar E, Silbergeld EK, et al. 2007. Lead exposure and cardiovascular disease—A systematic review. *Environ Health Perspect* 115:47—482.
3. Park WJ, Kim SH, Kang W, et al. 2019. Blood lead level and *Helicobacter pylori* infection in a healthy population: A cross-sectional study. *Arch Environ Occup Health* 74:1—6.
4. Luo J, Hendryx M. 2014. Relationship between blood cadmium, lead, and serum thyroid measures in U.S. adults – the National Health and Nutrition Examination Survey (NHANES) 2007—2010. *Int J Environ Health Res* 24(2):125—136.

Learn more at
www.cdc.gov/nceh/lead