

INFORMATION FOR HEALTHCARE PROVIDERS FOR IMPLEMENTING 3.5 µg/dL AS THE UPDATED CDC BLOOD LEAD REFERENCE VALUE (BLRV)

BACKGROUND

Exposure to lead can cause serious harm to a child's health. The amount of lead measured in blood, blood lead level (BLL), is used as an indicator of exposure to lead. However, no safe BLL exists and even small amounts of lead in the blood can result in damage to the brain and nervous system, slowed growth and development, and learning and behavior problems. While the lead exposure risks significantly decreased in the U.S. with the removal of lead in gasoline for on-road vehicles and lead-containing consumer paint, millions of children in the U.S. continue to be exposed to lead, primarily those who have been socially and economically marginalized.

The primary ways that children are exposed to lead include from [deteriorated lead-based paint](#), lead-contaminated dust from paint and soil, and lead-contaminated drinking water. Children can also be exposed to lead from toys and jewelry; antiques and collectible items; lead-glazed pottery; food, cosmetics, ceremonial powders, and traditional remedies; and occupational or take-home lead exposure from jobs and hobbies.

Disparities in BLLs exist with certain groups of children being at a higher risk for lead exposure, including children from some racial and ethnic minority groups, children living in low-income households, and children who live in housing built before 1978. Children who are immigrants, refugees, or recently adopted from outside of the U.S. are also at higher risk for lead exposure, as well as children whose parents/caregivers may be exposed to lead through their work or hobbies.

In 2012, CDC adopted a blood lead reference value (BLRV) as a way of identifying the 2.5% of U.S. children ages 1–5 at greatest risk of lead exposure. The BLRV is based on the 97.5th percentile of the BLL distribution among children 1–5 years old in the U.S. from the two most recent cycles of data from the [National Health and Nutrition Examination Survey \(NHANES\)](#). Thus, based on NHANES data from 2015–2018, CDC accepted the Lead Exposure and Prevention Advisory Committee (LEPAC) recommendation to update the BLRV to 3.5 µg/dL.

The BLRV is not a clinical reference value defining an acceptable range of BLLs in children nor is it a health-based toxicity threshold. It is a policy guide to identify children in the upper end of the blood lead distribution in the United States and thereby initiate follow-up actions to reduce the harmful effects of lead and eliminate or control lead exposure risks in the environment. The BLRV can also serve as a standard for evaluating the effectiveness of lead exposure prevention efforts.

KEY MESSAGES

1. CDC updated the BLRV to 3.5 µg/dL.
2. For children with BLLs at or above the BLRV of 3.5 µg/dL, healthcare providers are recommended to follow CDC's [recommended child-specific response actions](#). Children with BLLs lower than the BLRV of 3.5 µg/dL are recommended to receive the following child-specific response actions: routine assessment of nutritional and developmental milestones, anticipatory

guidance about common sources of lead exposure, and follow-up blood lead testing at recommended intervals based on the child's age.

3. The updated BLRV empowers healthcare providers to take earlier [action to identify and mitigate exposures](#) for children age 1–5 years with BLLs between 3.5 and 5 µg/dL who prior to this update would not have been recommended to receive these services until 5 µg/dL.
4. Lowering the BLRV to 3.5 µg/dL provides healthcare providers an opportunity to make additional progress in addressing the longstanding disparities in lead exposure and blood lead concentrations among young children.
5. Given that no safe BLL has been established, earlier recognition of lead exposure enables providers and families to intervene by stopping exposure that might otherwise result in higher blood lead concentrations.
6. This effort could limit or prevent potential adverse health effects. Earlier recognition of lead exposure also informs primary prevention efforts.

CALL TO ACTION

CDC would like healthcare providers to

1. Formally adopt the updated BLRV of 3.5 µg/dL.
2. Publicly promote the BLRV to identify children with BLLs that are higher than most U.S. children's levels.
3. At minimum, perform CDC's [recommended child-specific response actions](#) at or above the BLRV.
4. Take earlier action to identify and mitigate exposures for children ages 1–5 years with BLLs at or above the BLRV of 3.5 µg/dL:
 - a. Strive to ascertain possible sources of exposure by taking an environmental history, provide nutritional counseling related to iron and calcium intake, and consider laboratory evaluation of iron status when appropriate.
 - b. Provide guidance on exposure reduction, regardless of whether a source(s) is identified, and link patients and families to health departments for additional services such as environmental inspections and remediation when indicated.
 - c. Conduct follow-up testing using venous samples after any remediation activities have taken place to ensure exposure reduction was effective and BLLs are not increasing.
 - d. Assess developmental progress at regular intervals and provide referrals to supportive services as needed.

More information is available on CDC's [Blood Lead Reference Value \(BLRV\)](#) webpage.

INFORMATION RESOURCES

[MMWR Policy Note](#)

[BLRV Press Release](#)