

IN THIS ISSUE: CHILDHOOD LEAD POISONING**Childhood Lead Poisoning****Introduction**

Lead is a naturally occurring metal and when exposed, can cause negative health effects. Exposure to lead can happen by eating lead paint chips, ingesting contaminated food or water, and by breathing in lead dust. Children younger than 6 years are more at risk for exposures due to their hand to mouth behavior.¹ There is no safe blood lead level (BLL) in children that has been identified and even low lead levels in the blood can cause developmental delays, difficulty learning, behavioral issues, and neurological damage. The effects of lead poisoning can be permanent and disabling.^{1,3}

Children younger than 6 years are developing their nervous system and are particularly vulnerable to the effects of lead exposure. Young children absorb 4-5 times as much ingested lead compared to adults from a given source.² Lead can be stored in the bones and can take years to decrease dependent on the level the child was exposed to.³

CDC uses a blood lead reference value (BLRV) of 3.5 micrograms per deciliter ($\mu\text{g}/\text{dL}$) to identify children with BLLs higher than most children's levels.¹

Risk Factors

It is important to protect children from exposure to lead to improve health outcomes. Some children are more likely to be exposed to lead than others. Some risk factors include:

- Living in low-income households⁴
- Immigrants, refugees, or recently adopted from less developed countries⁴
- Living or spending time in homes built before 1978. These homes may contain lead-based paint. When the paint peels and cracks, it makes lead dust. Children can be exposed to lead when they swallow or breathe in lead dust^{1,4}

- Lead can be found in water through leaching from lead pipes, faucets in older buildings.^{1,2}
- Lead can be found in some products such as toys, jewelry and lead glazed food containers^{1,2}
- Lead is sometimes found in candies or traditional home remedies¹
- Certain jobs and hobbies involve working with lead-based products and may cause parents to bring lead into the home. Examples include, battery manufacturing, automobile repair, construction and renovation, plastic industries and steel or welding operations¹
- Children who live near airports may be exposed to lead in air and soil from aviation gas used in piston engine aircrafts¹
- Lead can be found in tobacco products and even second or third hand exposure on furniture, clothing or walls contains lead⁵

Prevention

CDC supports primary and secondary lead exposure prevention. Primary prevention occurs by removing lead hazards from the environment before a child is exposed. This is the most effective way to ensure children do not experience harmful long-term effects of lead exposure.⁶ Steps to prevent children from lead exposure include:

- Provide a diet rich in calcium, iron, and vitamin C⁷
- Ensure children are washing their hands and face after playing outside⁷
- Wash children's toys regularly to reduce exposure from soil or household dust⁷
- Remove shoes when entering the home⁷
- Change clothes when arriving home from a job with lead exposure⁷

Secondary prevention includes blood lead testing and follow-up care and referral. It remains an

essential safety net for children who may already be exposed to lead.⁶

Signs & Symptoms

Lead exposure may cause brain and nervous system damage, reduced IQ, behavioral problems, learning disabilities, slowed growth and development, hearing and speech developmental delays, premature birth, and low birth weight.⁸

While lower levels of lead exposure may present no observable symptoms, the effects of lead poisoning can cause damage over time, especially in children. The greatest risk is to brain development, where irreversible damage may occur.⁸

Diagnosis & Testing

The best way to know if a child has been exposed to lead is to have their blood tested.⁴ A blood test shows how much lead is in the child's blood. The amount of lead in blood is referred to as the blood lead level (BLL), which is measured in micrograms of lead per deciliter of blood ($\mu\text{g}/\text{dL}$).⁴

Any amount of lead in the blood means the child has been exposed to lead.

All children enrolled in Nevada Medicaid or Nevada Checkup are required to receive a blood test at 12 months and 24 months of age or at least once before age 6 if not previously tested. Completion of a risk assessment questionnaire does not meet the Medicaid requirement.⁹

Treatment

If a child has blood lead level above the CDC blood lead reference value of $3.5 \mu\text{g}/\text{dL}$ the provider should obtain a confirmation venous sample if one was not previously obtained. The provider may recommend follow-up services. These include finding and removing lead from the child's environment, reporting to the health authority, feeding the child a diet high in iron and calcium, connecting the child to early educational services, and scheduling follow-up blood testing. Early identification of lead in the blood is key to reducing the long-term effects of lead exposure.¹⁰

If a child has very high levels of lead in their blood, health care providers may recommend other types of testing and treatment to remove some of the lead

from the blood. If a child does have high levels of lead in their blood, they may receive chelation therapy, which is a medical treatment used to remove lead from the body.¹⁰

Reporting

The list of reportable communicable diseases and reporting forms can be found at:

<http://tinyurl.com/WashoeDiseaseReporting>

NRS 441A.120 states each qualified laboratory, office of a provider of health care or other services or medical facility that conducts a blood test for the presence of lead in a child who is under 18 years of age shall, as soon as practicable after conducting the test, submit a report of the results of the test to the appropriate health authority in accordance with regulations adopted by the State Board of Health.¹¹

The report must include, without limitation:

- Name, sex, race, ethnicity, and date of birth of the child
- Address of the child, including county and zip code
- Date sample was collected
- Type of sample collected, capillary or venous
- Name and contact information of provider ordering the test.

Report communicable diseases to Northern Nevada Public Health. To report a communicable disease, please call 775-328-2447 or fax your report to the NNPH at 775-328-3764.

Acknowledgement

Thank you to Nevada Childhood Lead Poisoning Prevention Program (NVCLPPP) for providing resources and support. In addition, thank you to health care providers, practitioners, and laboratory staff for reporting.

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