HEALTH EFFECTS

There is no known safe blood lead level. Many parts of the body can be damaged by lead. Young children are particularly vulnerable to lead because lead interferes with the developing brain. Even low levels of lead exposure can have neurobehavioral development effects (an IQ reduction).¹

How lead affects children’s health

Brain
An exposure is linked to lowered IQ. Adults having low, or damaged nerves. Acute hearing loss and impaired vision, bone and joint pain, some cancers, hyperactivity, irritability.

Heart
Studies suggest that adults who experienced past poisoning as children had significantly higher rates of high blood pressure 50 years later.

Blood
Lead inhibits the body’s ability to make hemoglobin, which can lead to anemia. This reduces oxygen to important organs. Weakness, fatigue, irritability, weakness of the limbs, shortness of breath.

Hormones
Long-term exposure can cause chronic inflammation, which can lead to liver and kidney damage. A decrease in sex hormones, weight gain, menstruation, rash, and urinary changes.

Stomach
Some lead exposure can cause chronic gastrointestinal upset and vomiting.

Kidneys
Chronic exposures can cause chronic inflammation, which can lead to kidney damage. A decrease in kidney function, weight gain, menstruation, rash, and urinary changes.

Reproductive System
A reproductive system can cause chronic inflammation, uterine bleeding, and loss of live. Loss of key organs, and reduced function of major organs.

Bones
Lead has major development and the health of bones, which can slow growth in children.

Blood lead testing rates by county in Washington State, 2014-2018

Most lead exposure in children goes undetected due to low blood lead testing. Washington state has the greatest proportion of missed cases (89%) in the US.

Blood lead testing rates of children 3 years of age and under, 2014-2018

Washington State 1%
Benton county 2%
Chelan county 2%
Douglas county 2%
Okanogan county 3%
Yakima county 3%

Elevated blood lead level rates of children 3 years of age and under, 2014-2018

Washington State 2%
Benton county 1%
Chelan county 1%
Douglas county 3%
Okanogan county 4%
Yakima county 2%

* Elevated is defined as a result ≥5µg/dL

MODELING THE RISK

The most common ways people are exposed to lead in soil are through inhaling and swallowing.

- Young children often put hands, toys, pacifiers, and other things in their mouths, and these may have dirt or dust on them that can be swallowed.
- Soil on homegrown vegetables may be swallowed when the produce is eaten.
- Adults may swallow or inhale soil and dust while gardening, mowing, dusting, and doing construction work.

IEUBK modeling for typical child 12-36 months of age exposed to various levels of lead concentration in soil

<table>
<thead>
<tr>
<th>Lead concentration in soil</th>
<th>Blood lead geometric mean (µg/dL)</th>
<th>Predicted risk that a child will have a blood lead level ≥5µg/dL (%)</th>
<th>Predicted risk that a child will have a blood lead level ≥10µg/dL (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 mg/kg</td>
<td>3.9</td>
<td>29.9</td>
<td>2.3</td>
</tr>
<tr>
<td>500 mg/kg</td>
<td>6.5</td>
<td>71.6</td>
<td>18.3</td>
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<tr>
<td>700 mg/kg</td>
<td>8.4</td>
<td>86.7</td>
<td>35.8</td>
</tr>
<tr>
<td>1000 mg/kg</td>
<td>10.9</td>
<td>95.3</td>
<td>57.9</td>
</tr>
</tbody>
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