



CARE FOR KIDS



Early & Periodic Screening, Diagnosis & Treatment

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The Effects of Lead Exposure on School Performance

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Iowa Department of Public Health

Lead adversely affects nearly all organ systems in the body. It is especially harmful to the developing brains and nervous systems of children under the age of 6 years. Very high blood lead levels can cause severe brain damage in children, and can be lethal.

Blood lead levels as low as 10 micrograms per deciliter ($\mu\text{g}/\text{dL}$) can affect a child's intelligence, hearing, and growth. Reducing a child's lead exposure can stop additional harm, but will not reverse the damage. A child is considered to have lead-poisoning at a blood lead level of 10 $\mu\text{g}/\text{dL}$. The Centers for Disease Control and Prevention (CDC) identified this level because it



is the level at which health effects can become significant. This is the level at which CDC recommends treatment to keep the blood lead level from increasing.

A number of studies estimate that a child's IQ will drop by one to three points for ev-

ery increase of 10 $\mu\text{g}/\text{dL}$ of lead in a child's blood. In a community, the presence of lead-poisoned children is associated with an increase in the number of children with developmental deficits and learning disorders, and this places an additional burden on our educational system.

Many children do not show any developmental delays when diagnosed as lead-poisoned, so health care providers and those conducting developmental assessments may falsely assume that they will not show developmental delays later on. However, many lead-poisoned children do show developmental

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Testing to Identify Lead-Poisoned Children

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Test all children for lead poisoning, using a blood lead level test. Initial testing may use a capillary or venous test. Confirm any capillary blood lead level greater than or equal to 15 micrograms per deciliter ($\mu\text{g}/\text{dL}$) with a venous blood lead test.

How frequently a child is tested depends on whether a child is at high or low risk of lead exposure. The Iowa

Department of Public Health recommends using the questionnaire on the next page to determine whether a child is at high or low risk.

HIGH RISK. A parental answer of "yes" or "I don't know" to any of the questions places the child in the high-risk category. When this occurs, test the child for lead poisoning at the ages of 12, 18, and 24 months, and 3, 4, and 5 years.

LOW RISK. If a parent answers "no" to all of the questions, the child is considered to be at low risk. In this situation, the child should be tested for lead poisoning at the ages of 12 and 24 months.

The Iowa Department of Human Services recommendations for the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program follow this schedule. Federal law requires lead testing of children enrolled in Medicaid, Head Start, and WIC.

Basic Lead Testing Chart (Based on Risk and Age)

Risk classification
See questionnaire, facing page

LOW-RISK

Test at ages of
12 and 24 months

If older than 24 months
and no previous test,
test once

Continue to assess risk

No additional testing needed
if risk does not change

HIGH-RISK

Test at ages of:
12 months
18 months
24 months
3 years
4 years
5 years

Resources

IDPH Bureau of Lead Poisoning Prevention, http://www.idph.state.ia.us/eh/lead_poisoning_prevention.asp

Statewide Plan for Childhood Blood Lead Testing and Case Management of Lead-Poisoned Children, IDPH, January 2006, <http://www.idph.state.ia.us/eh/common/pdf/lead/testplan.pdf>

Iowa Department of Public Health

Childhood Lead Poisoning Risk Questionnaire

Date _____

Name _____ Date of Birth _____

Address _____ Street _____ Apt. # _____ City _____ State _____ ZIP _____

If the answer to any of these questions is "yes", the child is considered to be at high risk for lead poisoning and must be screened according to the high-risk screening schedule. If the parent does not know the answer to a question, assume that the answer is "yes." Review this questionnaire at each regular visit. Enter the date each time you review the questionnaire, and note any changes to the answers.

YES	NO	QUESTIONS	NOTES
<input type="checkbox"/> Yes	<input type="checkbox"/> No	1. Has your child ever lived in or regularly visited a house built before 1960? (<i>Examples: home, daycare center, babysitter, relative's home</i>)	
<input type="checkbox"/> Yes	<input type="checkbox"/> No	2. Have you noticed any peeling or chipping paint in or around a pre-1960 house that your child has lived in or regularly visited?	
<input type="checkbox"/> Yes	<input type="checkbox"/> No	3. Has the pre-1960 home that your child lived in or regularly visited been remodeled or renovated by: <ul style="list-style-type: none"> • <i>Stripping, sanding, or scraping paint on the inside or outside of the house</i> • <i>Removing walls and/or tearing out lath and plaster</i> 	
<input type="checkbox"/> Yes	<input type="checkbox"/> No	4. Does your child eat non-food items such as dirt?	
<input type="checkbox"/> Yes	<input type="checkbox"/> No	5. Have any of your other children or their playmates had blood lead levels of 15 µg/dL or more?	
<input type="checkbox"/> Yes	<input type="checkbox"/> No	6. Does your child live with or frequently come in contact with an adult who works with lead on the job or in a hobby? (<i>Examples: painter, welder, foundry worker, old home renovator, shooting range worker, battery plant worker, battery recycling worker, ceramics worker, stained glass worker, sheet metal worker, scrap metal worker, plumber</i>)	
<input type="checkbox"/> Yes	<input type="checkbox"/> No	7. Does your child live near a battery plant, battery recycling plant, or lead smelter?	
<input type="checkbox"/> Yes	<input type="checkbox"/> No	8. Do you give your child any home or folk remedies? (<i>Examples: azarcon, greta, pay-loo-ah</i>)	
<input type="checkbox"/> Yes	<input type="checkbox"/> No	9. Does your child eat candy that comes from Mexico or is purchased from a Mexican grocery store?	
<input type="checkbox"/> Yes	<input type="checkbox"/> No	10. Has your child ever lived in Mexico, Central America, South America, Africa, Asia, or eastern Europe, or visited one of these areas for a period of longer than two months?	

The Effects of Lead Exposure on School Performance

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delays when they are older. It is important to track the behavior and development of lead-poisoned children into the school years to determine whether they have any problems.

According to the CDC, the effects of lead poisoning on a child's classroom performance may not appear until the child reaches certain *critical transition points* in school. CDC defines these critical transition points as:

1st grade, when children begin to acquire basic skills such as reading and arithmetic

4th grade, when children begin to use basic skills to learn material

6th to 7th grade, when students begin to use higher-order planning and organizational skills to complete long-term projects

Lead poisoning is associated with difficulties with these types of skills. While most of these studies took place in the United States, two studies done in Australia under a different educational system found similar results. The first study showed a 4- to 6-month delay in reading skills for a group of children with high levels of lead in the blood, when compared to a group with low lead levels. A

follow-up study showed that the high-lead group continued to have lower reading scores at the age of 18 years.

If a child with lead poisoning has difficulty at one of these transitions, the child is at increased risk of having trouble with later transitions. Even children who made early transitions smoothly should be monitored carefully at later transition points because they may have problems with developing and using higher level skills.



Children who are lead-poisoned in early childhood are also at an increased risk for behaviors that interfere with learning, such as inattention, distractibility, and impulsivity. These behaviors are characteristic of a recently identified subtype of ADHD. While these behaviors may not be sufficient to warrant a diagnosis of ADHD, the child may benefit from classroom and work accommodations

typically made for any child with an attention disorder.

The fact that a child who is lead-poisoned at an early age can have developmental delays that affect school performance later on clearly indicates the importance of testing children for lead poisoning at intervals during childhood. The early identification of children with mildly elevated blood lead levels can minimize the effects of lead poisoning, and keep the damage from escalating. At this early stage, intervention will often keep the child's blood lead level from increasing and will eventually cause it to drop, lessening the effects of lead poisoning on the child's school performance.

Resources

AAP Committee on Environmental Health, Lead exposure in children: Prevention, detection, and management (*Peds* 2005;116, 1036-46).

Managing elevated blood lead levels among young children: Recommendations from the Advisory Committee on Childhood Lead Poisoning Prevention (Atlanta: CDC, 2002).

Needleman H et al. Deficits in psychologic and classroom performance of children with elevated dentine lead levels (*N Engl J Med* 1979;300, 689-95); and Needleman H et al. The long-term effects of childhood lead exposure to low doses of lead; an 11-year follow-up report (*N Engl J Med* 1990;322, 83-88).



A Parent's Guide to Lead Poisoning

What is lead poisoning?

Lead poisoning happens when someone has enough lead in the body to cause harm. This can happen with a very tiny amount of lead.

How common is lead poisoning in Iowa?

In Iowa, one child in ten has lead poisoning.

How serious is lead poisoning?

It is very serious. Children's bodies are still developing. Even a little lead can cause damage. Lead can hurt the brain and nerves. It can cause learning disorders and behavior problems. It can stunt their growth. It can hurt their hearing. Higher levels of lead can damage kidneys. It can cause mental retardation. Very high levels can cause coma and death.

Why do so many Iowa children have lead poisoning?

Many Iowa houses were built before 1960, when house paint had lead in it. This paint is the most common cause of lead poisoning in children.

How does a child get lead poisoning?

Old paint is the most common source of lead. Children can get tiny flakes of old paint in their bodies if they:

- Put paint chips in their mouths
- Put dusty hands, toys, bottles, and pacifiers in their mouths
- Chew on painted surfaces, like window sills
- Play in dirt or sandboxes near an old building or where an old building was torn down
- Breathe in dust when old paint is sanded, scraped, or peeled with a heat gun

How can I protect my child from lead poisoning?

Here are some ways to protect your child:

- Keep your child away from peeling paint in older houses. Do this at home. Do it at day care. Check other homes that your child visits.
- Vacuum often to keep floors clean.
- Vacuum around and in your windows. Do this often. Windowsills often have chipping paint. So does the space between the outside storm window and inside sash.
- Wash your child's hands and face before meals and snacks.
- Wash your child's toys and pacifiers regularly.
- When you paint or remodel an older home, you can spread a lot of paint chips and dust around. Learn how to remove this paint safely before you begin.

What are the signs of lead poisoning?

Most children with lead poisoning do not look sick, but they may:

- Get excited easily
- Have trouble paying attention
- Have stomachaches and headaches
- Get tired easily
- Have learning problems when they start school

It is important to get help if you are worried. Even low levels of lead can hurt your child.



How can I find out if my child has lead poisoning?

Only a blood test can tell you if your child has lead poisoning. This is the only way to know for sure. Ask your doctor or nurse to test your child at each check-up. Medicaid covers this test for all children who use Medicaid. So do many health insurance plans.

How often should my child get this blood test?

Children younger than 6 years old should get this blood test once a year. That is because babies often have normal blood tests. But once a child begins to crawl or walk, they can get paint chips and dust on their hands and into their mouths. So it is important to check young children each year.

What happens if the test shows lead poisoning?

If the blood test shows lead poisoning, your nurse or doctor will talk with you about treatment for your child.

You will also need to find out where the lead is coming from. Someone will come to your home to help with this. It may be someone from your local health or housing agency. Or it may be someone from the Iowa Department of Public Health. They will help you find a way to deal with the problem.

You can get more information about lead poisoning from:

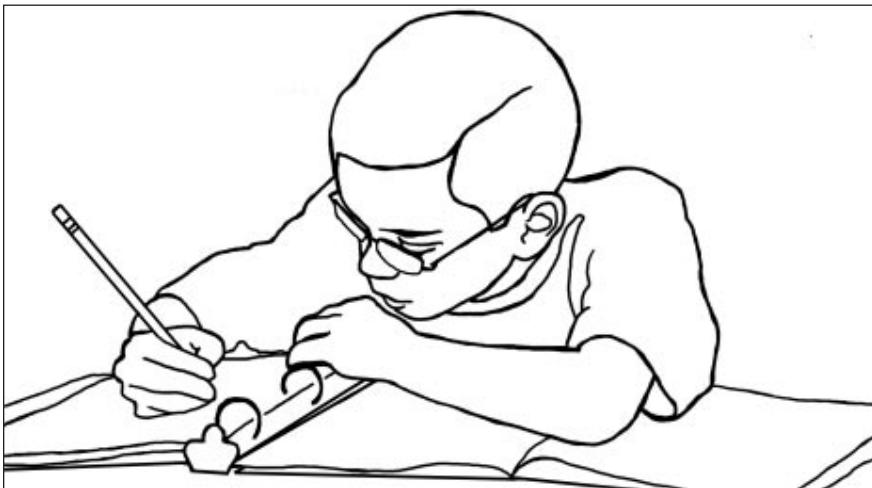
Your local health department or housing agency: Look in your local phone book under "Government"

The Iowa Department of Public Health, Bureau of Lead Poisoning Prevention (BLPP)

1-800-972-2026 • 1-515-281-3479 • http://www.idph.state.ia.us/eh/lead_poisoning_prevention.asp

PUBLICATIONS on the web at <http://www.idph.state.ia.us/eh/common/pdf/lead/>

- **Lead poisoning: How to protect Iowa families:** protect_iowa_families.pdf
- **Lead poisoning: Has your child been tested:** has_child_been_tested.pdf
- **Your child's capillary blood lead level and what it means:** capillary.pdf
- **Your child's venous blood lead level and what it means:** venous.pdf
- **Eliminating lead hazards:** eliminating_lead_hazards.pdf
- **Reducing lead hazards when remodeling your home (EPA):** epa_reducing_hazards.pdf
- **Lead paint safety: A field guide for painting, home maintenance, and renovation work (HUD):** lead_paint_safety.pdf



How do I bill for lead testing?

For lead testing services, bill code 99000 in addition to using the other codes appropriate to the services provided in the Care for Kids exam. The confirmatory draw would also use the code of 99000, with the appropriate E&M code. After confirming lead poisoning, treatment services use the ICD9 code for lead poisoning, which is 984.0.

NEW!

Detailed Billing Code Information **ONLINE** at IowaEPSDT.org

The EPSDT Care for Kids Provider Web Site now provides complete coding information to make billing for services easier. At www.IowaEPSDT.org/Services/BillingCode.htm, you will find detailed information on how to bill for:

- Comprehensive Preventive Medicine Services**, including:
 - EPSDT Care for Kids comprehensive periodic examinations
 - Periodic health supervision visits
- Risk assessment**: Screening assessment and diagnosis of developmental, social, emotional, and family risk concerns
- Developmental and mental health assessment and diagnosis**, with specific billing codes for use with the tools suggested in the Proposed Minimum Standards for:
 - Level 1: Screening ALL children
 - Level 2: Screening children AT RISK
 - Level 3: Developmental and mental health assessment and diagnosis

<http://IowaEPSDT.org/Services/BillingCode.htm>

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If you have questions about **billing**
related to EPSDT Care for Kids services, please call
Provider Services: **1-800-338-7909**

If you have questions about **clinical issues**
and EPSDT Care for Kids services, please call
1-800-383-3826

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