Lead Information for Families

Lead-Based Paint and Other Lead Hazards That May Be In Your Home

Lead is a highly toxic metal that may cause a range of health problems, especially in young children. When lead is absorbed into the body, it can cause damage to the brain and other vital organs, like the kidneys, nerves and blood. Lead may also cause behavioral problems, learning disabilities, seizures and in extreme cases, death. Some symptoms of lead poisoning may include headaches, stomachaches, nausea, tiredness and irritability. Children who are lead poisoned may show no symptoms.

If your home was built before 1978, there is a good chance that it has lead-based paint. In 1978, the federal government banned consumer uses of lead-containing paint, but some states banned it even earlier. Lead from paint, including lead-contaminated dust, is one of the most common causes of lead poisoning.

Both inside and outside the home, deteriorated lead-paint mixes with household dust and soil and becomes tracked in. Children may become lead poisoned by:

- Putting their hands or other lead-contaminated objects into their mouths,
- Eating paint chips found in homes with peeling or flaking lead-based paint,
- Playing in lead-contaminated soil, or, less often,
- Drinking water that has come to the home from corroded lead pipes.

Lead has been found in some traditional (folk) medicines used by East Indian, Indian, Middle Eastern, West Asian, and Hispanic cultures. Folk medicines can contain herbs, minerals, metals, or animal products. Lead and other heavy metals are put into certain folk medicines because these metals are thought to be useful in treating some ailments. Sometimes lead accidentally gets into the folk medicine during grinding, during coloring, or from the package.

Lead may also be found in imported traditional cosmetics such as kohl or alkolhl or surma.

Adults can bring home lead on hands or clothes if they:

- Work with lead and/or lead-based paint (for example, renovation and painting, mining, smelting, battery recycling, refinishing old furniture, auto body, shooting ranges).
- Have a hobby that uses lead (for example, hunting, fishing, stained glass, stock cars, making pottery). Lead can be found in shot, fishing sinkers and jigs, came and solder used in stained glass, weights used in stock cars, dyes and glazes used in pottery, and many other places.

What can you do?

If your home was built before 1978:

- Wipe down flat surfaces, like window sills, with a damp paper towel and throw away the paper towel.
- Mop smooth floors (using a damp mop) weekly to control dust.
- Take off shoes when entering the house.
- Vacuum carpets and upholstery to remove dust.
- Use a vacuum with a HEPA filter or a “higher efficiency” collection bag.
- Pick up loose paint chips carefully with a paper towel and discard in the trash, and then wipe the surface clean with a wet paper towel.
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- Take precautions to avoid creating lead dust when remodeling, renovating or maintaining your home.
- Test for lead hazards by a lead professional. (Have the soil tested too.)
- If you plan to do renovations or repairs on a home with lead hazards, make sure you know how to protect yourself and your family. [http://www.epa.gov/lead/renovation-repair-and-painting-program-do-it-yourselfers](http://www.epa.gov/lead/renovation-repair-and-painting-program-do-it-yourselfers)
- If you are a renter, learn your rights. You should receive a brochure from your property owner called Protecting Your Family from Lead in Your Home. It is available in several language from this website: [http://www.epa.gov/lead/protect-your-family-lead-your-home-real-estate-disclosure](http://www.epa.gov/lead/protect-your-family-lead-your-home-real-estate-disclosure)

You may want to test your home’s water if:

- Your home has lead pipes (lead is a dull gray metal that is soft enough to be easily scratched with a house key), or
- Your non-plastic plumbing was installed before 1986.

If you have a job or hobby where you may come into contact with lead:

- never put leaded materials (for example, fishing sinkers, lead came or solder for stained glass or leaded pottery clay or glaze) in your mouth,
- avoid handling food or touching your mouth or face while engaged in working with lead materials and wash hands before eating or drinking following such activities,
- shower and change clothes before entering your vehicle or coming home,
- launder your work and hobby clothes separately from the rest of your family's clothes, and
- Keep all work and hobby materials away from living areas.

For your child:

- Have your child's blood lead level tested at age 1 and 2.
- Children from 3 to 6 years of age should have their blood tested, if they have not been tested before and:
  1. They live in or regularly visit a house built before 1950,
  2. They live in or regularly visit a house built before 1978 with on-going or recent renovations or remodeling, or
  3. They have a sibling or playmate who has or did have lead poisoning
- Frequently wash your child's hands and toys to reduce contact with dust.
- Use cold tap water for drinking and cooking.
- Avoid using home remedies (such as azarcón, Greta, pay-loo-ah, litargirio, ghasard, ba-baw-san and daw tway) and cosmetics (such as kohl or alkohl) that contain lead.
- Certain candies, such as tamarindo candy jam products from Mexico, may contain high levels of lead in the wrapper or stick. Be cautious when providing imported candies to children.
- Some tableware, particularly folk terra cotta plates and bowls from Latin America, may contain high levels of lead that can leach into food.
Occupations That May Result in Lead Exposure / Common Sources of Adult Lead Exposure

Common Sources of Adult Lead Exposure:

How Lead Exposures Can Happen

If lead exposure is a possibility in your job, it is important that you understand how exposure occurs. This way you can take steps to lower your chances of being exposed.

You can be exposed by breathing-in lead fumes or lead dust.

Lead fumes are produced during metal processing, when metal is being heated or soldered. Lead dust is produced when metal is being cut or when lead paint is sanded or removed with a heat gun.

Lead fumes and lead dust do not have an odor, so you may not know you are being exposed.

You can be exposed by ingesting lead dust.

Lead dust can settle on food, water, clothes, and other objects. If you eat, drink, or smoke in areas where lead is being processed or stored, you could ingest lead dust. Not washing your hands before you eat or touch your mouth are also ways you could ingest lead.

Though not always the case, ingested lead may leave a metallic taste in your mouth.

You can be exposed by coming in contact with lead dust.

Some studies have found lead can be absorbed through skin. If you handle lead and then touch your eyes, nose, or mouth, you could be exposed. Lead dust can also get on your clothes and your hair. If this happens, it is possible that you will track home some of the lead dust, which may also expose your family.

Certain jobs and industries are more likely to be exposed to lead. These jobs have been known to put workers at risk of lead exposure:

- Artists (materials used may contain lead)
- Auto repairers (car parts may contain lead)
- Battery manufacturers (batteries contain lead)
- Bridge reconstruction workers (old paint may contain lead)
- Construction workers (materials used may include lead)
- Firing range instructors and gunsmiths (ammunition contains lead)
- Glass manufacturers (lead may be used in glass production)
- Lead manufacturers
- Lead miners
- Lead refiners
- Lead smelters
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- Manufacturers of bullets, ceramics, and electrical components (all contain lead)
- Painters (old paint and commercial paint may contain lead)
- Plastic manufacturers (materials made may contain lead)
- Plumbers and pipe fitters (pipes may contain lead)
- Police officers (ammunition contains lead)
- Radiator repairers (radiators may contain lead)
- Recyclers of metal, electronics, and batteries (may contain lead)
- Rubber product manufacturers (process contains lead)
- Shipbuilders (materials used may include lead)
- Solid waste incinerator operators (waste may contain lead)
- Steel welder (galvanized steel is coated in part with lead)
For your info, or for use in creating links from your own websites:

WEB RESOURCES

- **American Academy of Pediatrics**
  - AAP Recommended Action for Lead Levels (from 2005)
    - [http://pediatrics.aappublications.org/content/116/4/1036](http://pediatrics.aappublications.org/content/116/4/1036)

- **CDC**
  - Blood Lead Levels in Children: What Do Parents Need to Know to Protect their Children? (Fact sheet for providers)
  - Lead Information for Workers: [http://www.cdc.gov/niosh/topics/lead/exposure.html](http://www.cdc.gov/niosh/topics/lead/exposure.html)
  - Lead Poisoning Prevention Info: [http://www.cdc.gov/nceh/lead/tips.htm](http://www.cdc.gov/nceh/lead/tips.htm)

- **DHEC: Forms**
  - Screening Questionnaire for Lead Exposure / Women & Children’s Services (D-3511):

- **DHEC: Patient Education Materials**
  - Select “Childhood Lead Poisoning Prevention Program” under Program, or type “lead” in Search by Title. [http://www.scdhec.gov/Agency/EML/place_order.aspx](http://www.scdhec.gov/Agency/EML/place_order.aspx)

- **DHEC: Web Pages**
  - Childhood Lead Poisoning Data and Information (links on this page to Childhood Lead Data under “Track It. Map It. Use It.”):
    - [http://www.scdhec.gov/HomeAndEnvironment/YourHomeEnvironmentalandSafetyConcerns/Lead/LeadData/mindex.htm](http://www.scdhec.gov/HomeAndEnvironment/YourHomeEnvironmentalandSafetyConcerns/Lead/LeadData/mindex.htm)

- **EPA**
  - Main Lead Landing Page: [http://www2.epa.gov/lead](http://www2.epa.gov/lead)
  - Protect Your Family From Lead In Your Home: [http://www.epa.gov/sites/production/files/2014-02/documents/lead_in_your_home_brochure_land_b_w_508_easy_print_0.pdf](http://www.epa.gov/sites/production/files/2014-02/documents/lead_in_your_home_brochure_land_b_w_508_easy_print_0.pdf) (links for other languages: [http://www.epa.gov/lead/protect-your-family-lead-your-home](http://www.epa.gov/lead/protect-your-family-lead-your-home))

- **HUD**
• OSHA
  o If You Work Around Lead, Don’t Take It Home!
    https://www.osha.gov/Publications/OSHA3680.pdf

• Pediatric Environmental Health Specialty Units
  o Interpreting and managing low blood lead levels: Supplemental information for clinicians:
    http://depts.washington.edu/pehsu/sites/default/files/NWPEHSU_INTERPRETING_AND_MANAGING_BLOOD_LEAD_LEVELS_Supplement_To_National_2013_FINAL.pdf
  o Medical Management Guidelines & Fact sheet for providers:

• South Carolina Healthy Connections
  o Guidance for Lead Screening through EPSDT visits (pp 2-100 through 2-102):
For Healthcare Providers

Lead Testing Requirements and Recommendations - For Children

- **Medicaid**: The Medicaid EPSDT Program requires that all enrolled children have a blood lead toxicity screening at 12 and 24 months of age. Providers have the option of obtaining the lead test at 9 or 12 months of age. Medicaid also requires a lead toxicity screening for any child 36 to 72 months of age who has not previously been screened or who presents with symptoms of possible lead poisoning.

- **Head Start**: The Head Start program requires a blood lead screening test for any enrolling child if records of prior testing are not available.

- **Refugees**: The CDC recommends screening of all refugee children 6 months to 16 years of age, as soon as possible after arrival. Conduct an additional lead test on all children aged 6 months - 6 years within 3-6 months of placement in a permanent residence, regardless of the results of the initial lead test.

- **International Adoptees**: The CDC recommends that all internationally adopted children have a blood lead test during their first medical examination in the U.S. and at 12 and 24 months of age.

- **Lead Testing of Any Child** is recommended if the well-child history identifies any of the following risks:
  - Lives in or regularly spends time in a house built before 1950, or a home built before 1978 that is undergoing remodeling currently or in past 6 months;
  - Lives in or regularly visits a home with vinyl mini blinds made before 1997 or not labeled as “lead safe”;
  - Has a family member or playmate with elevated blood lead levels or lead poisoning diagnosis;
  - Lives with an adult whose job or hobby involves working with lead (such as house painting, welding, auto body work, working with batteries, fishing, stained glass, or ceramics);
  - Has pica, especially if observed eating paint chips, or soil/dirt.

The DHEC Lead Screening Questionnaire (D-3511) may be used by pediatric care providers to identify children who should have blood lead screening. The form assesses for common lead exposures and risks. It can be accessed here:

For Healthcare Providers:

Reporting Lead Test Results

Per the List of Reportable Conditions, results of all blood lead tests are reportable to S.C. DHEC within 3 days. Laboratories and healthcare providers are requested to indicate if blood specimens were capillary or venous.

- Lead results other than blood are not reportable to DHEC.
- Results are reportable regardless of age of the person being tested, the type of test (capillary or venous), where the test was performed (laboratory or point-of-care), or the result obtained.
- Providers do not need to re-send results that were analyzed by a reference laboratory (e.g., ARUP, LabCorp, MedTox, Quest, Solstice). These laboratories send results directly to S.C. DHEC.
- Providers may submit results using the DHEC Disease Reporting Form (http://www.scdhec.gov/library/D-1129.pdf) or other documentation that contains the information specified below.
- Lead test reports should contain the information specified by the List of Reportable Conditions, particularly:
  - Patient’s name
  - Patient’s complete address, phone, county, date of birth, race, sex,
  - Physician’s name and phone number
  - Name, institution, and phone number of person reporting
  - Disease or condition – “Lead Testing” is sufficient
  - Lab results, specimen site (venous or capillary), collection date

Options for Submitting Reports of Lead Tests:

Mail to: Division of Children's Health
Mills/Jarrett Complex
2100 Bull Street, Columbia, SC 29201

Fax to: (803) 898-0577

Call (803) 898-0767 to establish electronic reporting for lead.
For Healthcare Providers

Suggested Clinical Evaluation for Lead Exposure / EBLL

Medical History

- Health and Medical Recent History
  - Symptoms
  - Developmental history
  - Mouthing activities
  - Pica (especially paint chips, soil/dirt)
  - Previous blood lead concentration measurements
  - Family history of lead poisoning, especially in young siblings
  - History of anemia

- Environmental history / Paint and soil exposure
  - What is the age and general condition of the residence or other structure in which the child spends time?
  - Are there other sites at which the child spends significant amounts of time?
    - Living in or frequently visiting a house built prior to 1950, or a house built before 1978 that is undergoing remodeling poses a risk of lead exposure.
  - Is there evidence of chewed or peeling paint on woodwork, furniture, or toys?
  - How long has the family lived at that residence?
  - Have there been recent renovations or repairs to the house?
  - Are the windows new?
  - What is the condition/make-up of indoor play areas?
  - Do outdoor play areas contain bare soil that may be contaminated?
  - How does the family attempt to control dust and dirt?
  - Is the home near other sources of lead, such as lead smelters, battery recycling, auto salvage) manufacturing facilities, storage areas, or disposal sites?
  - Has the child spent significant periods of time living outside of the United States?

- Relevant behavioral characteristics of the child
  - To what degree does the child exhibit hand-to-mouth activity?
  - Does the child exhibit pica?
  - Are the child's hands washed before meals and snacks?
• Exposures to and behaviors of household members
  o What are the occupations of adult household members?
  o What are the hobbies of household members? (Fishing, working with ceramics or stained glass, and hunting are examples of hobbies that involve risk for lead exposure.)
  o Are painted materials or unusual materials burned in household fireplaces?

• Miscellaneous
  o Does the home contain painted or vinyl mini blinds made overseas and purchased before 1997?
  o Does the child receive or have access to imported food, cosmetics, or folk remedies?
  o Is food prepared, served, or stored in imported ceramics/pottery or metal vessels?
  o Does the family use imported foods in soldered cans?

Nutritional history
• Take a dietary history
• Evaluate the child’s iron status by using the appropriate laboratory tests
• Ask about history of SNAP (food stamps) or WIC program participation (may be referred to WIC if child is under 5, with a lead level 10 or greater, and is financially qualified)

Physical examination
• Pay particular attention to the neurologic examination and the child’s psychosocial and language development
Summary of Recommendations for Children with Confirmed (Venous) Elevated Blood Lead Concentrations

<table>
<thead>
<tr>
<th>Capillary Screening Result</th>
<th>Retesting</th>
<th>Medical Management by Primary Care Provider</th>
</tr>
</thead>
</table>
| <5 mcg/dL                  | Per periodicity schedule | • Report blood lead test result to parent  
|                            |                  | • Counsel on lead sources and prevention of lead exposure in the home or in places regularly visited by the child |
| 5-9 mcg/dL                | Within 3 months  | 5-9 mcg/dL – All of above, plus:  
|                            |                  | • Follow-up venous (preferred) testing every 3-6 months until result is <5 mcg/dL  
|                            |                  | • Consider testing of other children under six years of age in same household  
|                            |                  | • Take environmental history to identify lead in the home or in places regularly visited by the child, or risks associated with parent/caregivers’ employment or hobbies / discuss lead hazard reduction  
|                            |                  | • Counsel on nutrition, including any need for iron or calcium supplementation, determine water sources, assess for pica |
| 10-14 mcg/dL              | Within 1 month   | 10-14 mcg/dL – Above, plus:  
|                            |                  | • Refer to WIC program if <5 years of age  
|                            |                  | • Schedule follow-up blood lead testing every 3 months for 2-4 tests, then every 6 months after BLL begins to decline. Continue testing until result ≤5. |
| 15-19 mcg/dL              | Within 1 month   | 15-19 mcg/dL – All of above, plus:  
|                            |                  | • Refer DHEC for environmental investigation if child has 2 or more 15+ venous results obtained at least 3 months apart (persistent elevated blood lead level)  
|                            |                  | • Physical exam, neurodevelopmental monitoring, H&H, iron status  
|                            |                  | • Schedule follow-up blood lead testing every 1-3 months for 2-4 tests, then every 3-6 months after BLL begins to decline, until level decreases to less than 5. |

1 If initial elevated blood lead level was identified from a venous specimen, proceed with medical management and obtain follow-up specimens as indicated for resulted level.
<table>
<thead>
<tr>
<th>Capillary Screening Result</th>
<th>Obtain confirmatory venous specimen¹</th>
<th>Medical Management of Diagnostic Venous EBLL by Primary Care Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-44 mcg/dL</td>
<td>Within 1 week</td>
<td>20-69 mcg/dL -- All of above, plus:</td>
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<tr>
<td></td>
<td></td>
<td>• Refer to DHEC for environmental investigation for a single venous test ≥20</td>
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<tr>
<td></td>
<td></td>
<td>• <strong>Consider oral outpatient chelation at ≥45 mcg/dL</strong>, if child can be removed from lead in environment. Consult with chelation expert. Chelation is not recommended at levels below 45 mcg/dL.</td>
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<tr>
<td></td>
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<td>• Abdominal x-ray with bowel decontamination if indicated by history</td>
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<td></td>
<td></td>
<td>• <strong>For Results 20-44</strong>: Schedule follow-up blood lead testing every 2-4 weeks for 2-4 tests, then monthly after BLL begins to decline</td>
</tr>
<tr>
<td></td>
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<td>• <strong>For Results ≥45</strong>: Retest as indicated by chelation product, or at least every 2 weeks if child is not being chelated due to ongoing exposure. Test monthly once results begin to decline to 20-44 range.</td>
</tr>
<tr>
<td>45-69 mcg/dL</td>
<td>Within 48 hours</td>
<td></td>
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<tr>
<td>≥ 70 mcg/dL</td>
<td>Immediately, as an emergency lab test</td>
<td>≥ 70 mcg/dL -- All of above, plus:</td>
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<td></td>
<td></td>
<td>• Hospitalize child and begin medical treatment immediately, including parenteral chelation therapy</td>
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<tr>
<td></td>
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<td>• Retest per recommendations from chelation product</td>
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