

ABOUT CHILDHOOD LEAD POISONING



What is lead poisoning?

- Lead is a heavy metal used in many materials and products. Lead affects practically all systems within the body.
- Lead poisoning takes place when lead enters the body, most commonly through ingestion (swallowing). Common sources of lead are described below.
- Lead is most harmful to young children (under the age of six years) for two reasons: lead is easily absorbed into their growing bodies, and lead interferes with the rapidly developing brain and other organs of young children. Very young children (one and two years of age) are especially vulnerable to the effects of lead.
- Pregnant women who are exposed to lead can expose the unborn fetus, because lead ingested by the mother can cross the placenta.

What are the effects of lead poisoning?

- Very high levels of lead exposure can cause mental retardation, coma, convulsions, and even death. Very high levels of lead exposure are now rare in the United States.
- Children in the United States are more likely to receive chronic, low-level exposure, which can cause reduced IQ, shortened attention span, hyperactivity, learning disabilities, and other health problems.
- A blood test is the only way to know if a child is lead poisoned, because the detrimental effects of low-level lead poisoning will not appear as symptoms that are easy to identify.

How do children become lead poisoned?

- Lead is widespread in the environment—in paint, dust, soil, water, air, and food—primarily from products that are no longer used in the United States, such as residential lead-based paint and leaded gasoline.
- Young children are most likely to be poisoned by lead dust from lead-based paint in older homes that are in poor condition.
- Very young children (ages one and two years) are the most likely to be poisoned because of normal hand-to-mouth activity after getting lead dust on their hands and toys. (For more information, see the fact sheet [How Can Lead Poisoning Be Prevented?](#))

What can be done for a child with lead poisoning?

- Severely poisoned children are often treated with chelation, a drug therapy, which may reduce the level of lead present in the body without completely eliminating it.
- The most important thing to do for a lead-poisoned child is to protect the child from further exposure to lead.

SCREENING FOR CHILDHOOD LEAD POISONING



Required blood lead screening for young children

- The federal government requires screening, using a blood lead test, for all children enrolled in Medicaid at ages 12 and 24 months. Children between the ages of 36 and 72 months with no record of prior screening must also receive a screening blood lead test.¹ The American Academy of Pediatrics endorses this requirement.²
- State Medicaid contracts with managed care organizations usually require routine lead screening. State and local health authorities may recommend screening of other children besides those enrolled in Medicaid, because of local risk for exposure to lead.
- The Centers for Disease Control and Prevention (CDC) recommends that all state health departments use local data to provide guidance about lead screening. In the absence of specific health department guidance, health care providers should screen all children at ages 1 and 2, and children aged 36 to 72 months with no record of prior screening.³

Importance of childhood blood lead screening

- Screening with a blood lead test is the only way to determine if a child is exposed to lead.
- Significant adverse health effects, including effects on children's ability to learn, are found even at blood lead levels as low as 10 micrograms per deciliter ($\mu\text{g}/\text{dL}$).
- While blood lead levels in the 10–25 $\mu\text{g}/\text{dL}$ range are detrimental to young children, these levels do not usually cause obvious symptoms.
- Blood lead screening to identify lead-poisoned children in the presymptomatic phase is an important tool for preventing or reducing permanent sequelae, such as persistent seizures.
- Children who are identified with blood lead elevations through screening should receive interventions, especially those aimed at halting lead exposure. *Note:* The higher a child's blood level, the more urgent and comprehensive the interventions called for. Chelation therapy may be recommended for children with extremely high lead levels (greater than 45 $\mu\text{g}/\text{dL}$).

Sampling method

- A screening blood specimen can be obtained using either venipuncture or fingerstick. If the fingerstick method is used, it is imperative that children's fingers be carefully cleaned.⁴ Screening by risk questionnaire is not an adequate substitute for blood lead testing.



1. US Health Care Financing Administration, *State Medicaid Manual, Part 5: Early and Periodic Screening, Diagnosis, and Treatment (EPSDT)*. Section § 5123.2, September 1998. Department of Health and Human Services.
2. American Academy of Pediatrics, *AAP News*, 1999; 15 (12) 6.
3. Centers for Disease Control and Prevention, *Screening Young Children for Lead Poisoning: Guidance for State and Local Health Officials*. Atlanta: CDC, 1997.
4. Ibid.

WHO IS AT RISK FOR CHILDHOOD LEAD POISONING?



Childhood blood lead levels in the United States

- Significant numbers of children are poisoned each year, even though blood lead levels in the US population have been declining steadily since lead was removed from gasoline.
- Blood lead levels as low as 10 micrograms per deciliter (written as $\mu\text{g}/\text{dL}$) can harm a young child's ability to learn by causing decreased IQ, shortened attention span, hyperactivity, and learning disabilities.
- National data on childhood lead poisoning are collected through the Centers for Disease Control and Prevention's (CDC) National Health and Nutrition Examination Survey (NHANES).^{1,2}
- According to an NHANES survey conducted during the period 1991 to 1994, an estimated 890,000 children aged 1 to 5 years had blood lead levels of 10 $\mu\text{g}/\text{dL}$ or greater. An NHANES survey during 1999 showed that the mean blood lead level among children has continued to decline, suggesting that fewer children are now lead poisoned, but an estimate of the actual number is not yet available.
- Screening data from 19 states were collected from 1996 to 1998. CDC's analysis of these data shows that the problem of lead poisoning is concentrated on a local level. In some counties, more than a quarter of tested children were lead poisoned. In other counties, the percent was much lower.³

Which children are at risk for childhood lead poisoning?

The most recent information on risk comes from the earlier NHANES survey (collected from 1991 through 1994), which showed that:

- Children from poor families were eight times more likely to be poisoned than those from higher income families.
- African-American children were five times more likely to be poisoned than white children. Nationwide, about 22 percent of African-American children living in older housing were lead poisoned. In some communities, the poisoning rate was even higher.
- Eighty-three percent of children with severe lead poisoning (blood lead levels of 20 $\mu\text{g}/\text{dL}$ or greater) were enrolled in Medicaid.⁴

Updated estimates of blood lead levels among high-risk subgroups (for example, poor children) are expected from CDC after NHANES survey results from 2000 and 2001 become available.

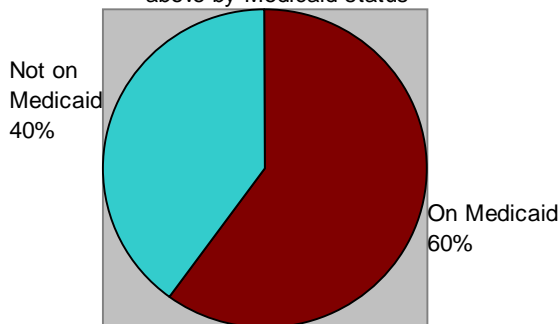


1. Centers for Disease Control and Prevention, "Update: Blood Lead Levels—United States, 1991–1994." *MMWR* 1997; 46:141-6. Erratum: vol. 46, no. 7. *MMWR* 1997; 46:607.
2. Centers for Disease Control and Prevention, "Blood Lead Levels in Young Children—United States and Selected States, 1996–1999." *MMWR* 2000; 49 (50):1133–7.
3. Ibid.
4. US General Accounting Office, *Medicaid: Elevated Blood Lead Levels in Children*, GAO/HEHS-98-78, February 1998.

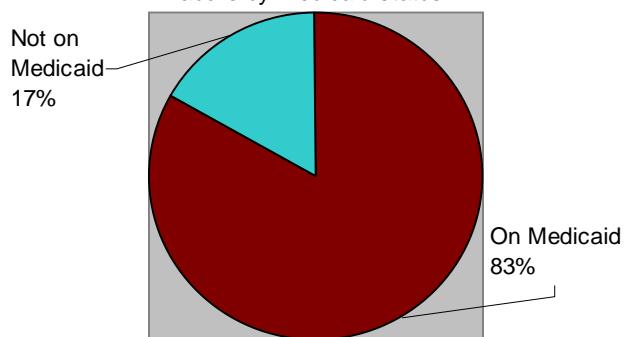
SCREENING FOR CHILDREN ENROLLED IN MEDICAID

- According to the Centers for Disease Control and Prevention's (CDC) National Health and Nutrition Examination Survey, conducted from 1991 through 1994, children enrolled in Medicaid are more likely than other children to have elevated blood lead levels.¹
- The higher a child's blood lead level, the more likely that he or she will be enrolled in Medicaid. (See charts.)

Percent of children ages 1-5, with blood lead levels of 10 and above by Medicaid status



Percent of children ages 1-5 with blood lead levels of 20 and above by Medicaid status



- Children from poor families were eight times more likely to be poisoned than those from higher income families, and African-American children were five times more likely to be poisoned than white children. About 22 percent of African-American children living in older housing were lead poisoned.²
- In response to these findings, the federal agency that oversees Medicaid requires blood lead screening for all children enrolled in Medicaid at the ages of 12 and 24 months, and for any child 36 to 72 months of age who has no record of prior screening.³
- The American Academy of Pediatrics and CDC's Advisory Committee on Childhood Lead Poisoning Prevention endorse this requirement.^{4,5}
- Despite requirements, the rate of Medicaid lead screening remains low, and most lead-poisoned Medicaid enrollees are never identified; thus, they do not receive appropriate follow-up care.⁶
- Screening the Medicaid population has the potential to bring about identification and follow-up care for a significant number of lead-poisoned children and action to make their homes safe for future occupants.

1. US General Accounting Office, *Medicaid: Elevated Blood Lead Levels in Children*, GAO/HEHS-98-78, February 1998.

2. Centers for Disease Control and Prevention, "Update: Blood Lead Levels—United States, 1991–1994." *MMWR* 1997; 46:141-6. Erratum: vol. 46, no. 7. *MMWR* 1997; 46:607.

3. US Health Care Financing Administration, *State Medicaid Manual, Part 5: Early and Periodic Screening, Diagnosis, and Treatment (EPSDT). Section § 5123.2*, September 1998. Department of Health and Human Services.

4. American Academy of Pediatrics, *AAP News*, 1999; 15 (12) 6.

5. Advisory Committee on Childhood Lead Poisoning Prevention, Centers for Disease Control and Prevention, "Recommendations for Lead Screening of Young Children Enrolled in Medicaid: Targeting a High-Risk Group for Lead Screening." *MMWR Reports and Recommendations*, December 8, 2000.

6. See footnote 1.

RECOMMENDATIONS FOR IMPROVING LEAD SCREENING



The following are recommendations for state public health and Medicaid agencies.

- **Ensure that state Medicaid policies and program materials on lead screening are in compliance with federal requirements.** The Health Care Financing Administration (HCFA), the federal agency that oversees the Medicaid program, requires lead screening for all one- and two-year-old children who are Medicaid beneficiaries. It is up to state Medicaid agencies to provide information to health care providers about Medicaid lead screening policies and the data that justify them. Because of changes in Medicaid screening policy over the past several years, providers may be unclear about current Medicaid and health department policies on lead screening, and they may be motivated to provide screening by the abundant evidence that justifies these policies.
- **Ensure that state Medicaid managed care contracts include lead screening requirements and provide for follow-up services.** When state Medicaid agencies develop contracts with managed care plans, these contracts should expressly require lead screening as part of the contract, in order to ensure clarity.
- **Ensure that providers receive adequate Medicaid EPSDT reimbursement and capitation rates for lead screening and follow-up services.** State Medicaid agencies can remove a major obstacle to lead screening by ensuring that health care providers are adequately reimbursed for this service and that when capitation rates are developed with managed care plans, these rates are adequate to cover the cost of lead screening.
- **Ensure that children identified with elevated blood lead levels receive environmental follow-up in addition to other components of case management.** State Medicaid agencies can join with health care providers and public health programs to ensure that lead-poisoned children receive environmental follow-up care, including environmental investigation and temporary and permanent reduction or removal of lead hazards.¹ This effort is extremely important—after all, the point of screening is reduction of exposure sources and lowering of blood lead levels, and many health care providers are justifiably reluctant to screen and identify lead-poisoned children who won't receive proper follow-up care.
- **Measure the performance of health care plans and providers on lead screening and provide feedback, giving incentives to providers with high screening rates.** It's a fact that plans and providers tend to focus on providing services that will contribute to their receiving high quality ratings. If lead screening is not one of them, it may receive low priority.
- **Ensure that state information systems enable tracking of blood lead screening and estimation of prevalence of elevated blood levels among young children enrolled in Medicaid.** Without information about children receiving screening and children with elevated blood lead levels, it is difficult for programs to determine where to focus efforts on improvement. Having a system to track this information is also crucial because it can be a source of evidence of the occurrence of lead poisoning that can be used to bolster providers' willingness to screen.

1. HCFA policy requires that state Medicaid programs cover environmental investigation and case management services for lead-poisoned children. (US Health Care Financing Administration, *State Medicaid Manual, Part 5: Early and Periodic Screening, Diagnosis, and Treatment (EPSDT)*. Section § 5123.2, September 1998.)

HOW CAN LEAD POISONING BE PREVENTED?



How do children become lead poisoned?

- Most commonly, children are poisoned by lead dust from deteriorated paint in poorly maintained older housing.
- Young children can become poisoned through normal hand-to-mouth activity, after they get lead dust on their toys and hands. Rarely, children may swallow paint chips or flakes.
- Children may also be poisoned by lead dust from repainting and remodeling projects that disrupt old painted surfaces, when the resulting lead dust is not properly contained and cleaned up.

How can families prevent lead poisoning?

- If you believe that your young child may have been exposed to lead, ask your health care provider to test your child's blood for lead.
- A blood lead level of 10 micrograms per deciliter ($\mu\text{g}/\text{dL}$) or higher is a level to be concerned about, and you should take steps to identify and reduce lead exposure. A child with very high blood lead levels (45 $\mu\text{g}/\text{dL}$ or greater) requires medical treatment.
- If you purchase or rent a home built before 1978, review information about lead-based paint hazards. The law requires the property owner to provide this information. If you don't receive it, ask for the information.
- Good maintenance is important in keeping old lead-based paint intact.
 - Don't power-sand or burn off old paint with an open flame.
 - When repairing or disturbing old paint, control and clean up dust, which is likely to contain lead.
 - Put down plastic to catch lead dust and protect floors and belongings.
 - Wet-mop the work area afterward, using water with detergent, to clean up lead dust.
 - Don't remove large areas of lead-based paint yourself, because of the difficulty of controlling lead dust. Experts with special training should be hired for such jobs.
- Indoors, keep areas where children play as dust free and clean as possible. Wet-mop floors and wipe window ledges and surfaces such as cribs with detergent and warm water.
- Outdoors, have children play in sand and grassy areas instead of in dirt, which may contain lead and which sticks to their fingers and toys.
- Have children wash their hands after playing outside and before meals, naps, and bedtime.
- Eat a healthy diet that includes low-fat foods containing iron and calcium. Eggs, red meats, and beans have iron; low-fat milk and milk products have calcium. A healthy diet causes the body to absorb less lead.
- If you work with lead, do not bring lead dust into your home from the workplace. Remove work clothes and wash them separately from the rest of your family's clothing.
- Have your water tested for lead. Do not boil water with lead in it for infant formula, because boiling will concentrate the lead. Use bottled water for this purpose.

SOURCES OF INFORMATION ABOUT CHILDHOOD LEAD POISONING

Alliance To End Childhood Lead Poisoning

227 Massachusetts Avenue, NE Suite 200
Washington DC 20002
202-543-1147
www.aeclp.org

Lead Poisoning Prevention Branch, Centers for Disease Control and Prevention (CDC)

1600 Clifton Road; MS E-25
Atlanta, GA 30333
404-639-2510
www.cdc.gov/nceh/lead/lead.htm

Center for Medicaid and State Operations, US Health Care Financing Administration (HCFA)

7500 Security Boulevard
Baltimore, MD 212244
1-800-448-HCFA
www.hcfa.gov

George Washington University Center for Health Services Research and Policy

www.hfni.gsehd.gwu.edu/~chsrp/frame.html

Sample specifications for state Medicaid agencies to use in writing contracts with managed care plans are available on the Internet; technical assistance to states in the use of the specifications is available from the Center at no charge.

Office of Lead Hazard Control, US Department of Housing and Urban Development (HUD)

Washington, DC 200XX
202-755-1785
www.hud.gov/lea/leatips.html

US Environmental Protection Agency (EPA)

www.epa.gov/lead/leadpbcd.htm

Visit this site for copies of the EPA pamphlets Lead in Your Home: A Parents' Reference Guide, Protect Your Family from Lead in Your Home, and Reducing Lead Hazards When Remodeling Your Home.

United Parents Against Lead (UPAL)

home.earthlink.net/~shabazzaupal/

UPAL is comprised of parents of lead-poisoned children. UPAL provides information and referrals to families on a state, local, and national level.

National Lead Information Center (NLIC)

1-800-424-LEAD (lead information center and clearinghouse)
www.epa.gov/opptintr/lead/nlic.htm

National Conference of State Legislatures (NCSL)

www.ncsl.org/programs/esnr/toxics.htm#lead
This site contains a directory of state contacts.

THE SHARPEST TOOL IN THE KIT: THE MEDICAID-MANAGED CARE PURCHASING SPECIFICATIONS

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Sample purchasing specifications for lead screening and follow-up care have been developed by the Center for Health Services Research and Policy at the George Washington University School of Public Health and Health Services with funding from CDC. The sample specifications, which are part of a Sample Purchasing Specifications Series, are available at no charge at <http://www.gwu.edu/~chsrp/>. They also may be obtained free of charge in diskette format from:

*The George Washington University Medical Center
Center for Health Services Research and Policy
2021 K Street N.W. #800
Washington D.C. 20006*

Technical assistance to states in the use of the specifications has been funded by CDC and is available from the Center at no charge.

- CDC's Advisory Committee on Childhood Lead Poisoning Prevention recommends that state Medicaid agencies place clear requirements for lead screening and follow-up care in their purchasing agreements with managed care plans.
- Explicit purchasing agreements create legally enforceable duties of the managed care plans and are a foundation for performance measurement. With clear instructions in place, it is possible to provide more effective feedback to providers, and to develop incentives and other quality control measures.
- To help state Medicaid agencies ensure that contract requirements for lead services are clear and unambiguous, sample purchasing specifications have been developed. They are an indispensable tool that will also help state Medicaid agencies identify key issues and decision points as they prepare their purchasing agreements with managed care plans.
- Highlights of helpful provisions in the sample purchasing specifications include the following:
 - √ Menu of draft provisions for contracts, RFPs, and intergovernmental agency agreements.
 - √ Designed to be used singly or in combination with one another.
 - √ Contracting language that is consistent with HCFA requirements for lead screening and follow-up care.
 - √ Alternatives to accommodate various legal, policy, and programmatic approaches to lead services among and within state and local jurisdictions.
 - √ Italic insertions that identify points at which the user may append state or local laws, regulations, ordinances, programs, or agencies that pertain to childhood lead poisoning. Explanatory drafter's notes are as footnotes.

Case Management for Childhood Lead Poisoning

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What is case management for a lead poisoned child? Coordination, provision, and oversight of services designed to eliminate the child's exposure to lead hazards and to lower the child's blood lead level as much and as quickly as possible.

Who should have lead case management? According to CDC, children with:

- A confirmed venous blood lead level greater than or equal to 20 $\mu\text{g}/\text{dL}$, or
- Two venous blood lead levels between 15-19 $\mu\text{g}/\text{dL}$ taken at least 3 months apart.

The younger the child and the higher the child's blood lead level, the more urgent it is to begin case management.

What services are recommended?

- *Home visits* to assess factors that affect the child's blood lead level, such as environmental lead hazards, nutrition, family interaction, and family understanding, and to evaluate progress.
- *Development of a written management plan*, negotiated with the family and including:
 - √ Temporary lead hazard reduction measures such as cleaning.
 - √ Permanent lead hazard elimination such as window replacement and paint encapsulation or removal.
 - √ Temporary or permanent family relocation to lead-safe housing, when necessary.
 - √ Education of family members (see below).
 - √ Plan for medical follow-up (treatment and follow-up testing).
 - √ Coordination/referral to ensure appropriate follow-up and needed services such as WIC or Head Start.
- *Education of family members* about lead and ways to reduce lead exposure and otherwise help the child, such as dust control, good nutrition, and reducing hobby or take-home occupational exposures.
- *Referrals for needed services identified in the management plan.*
- *Coordination of the case management team in executing the plan.*
- *Evaluation and action* to ensure that the action plan is effectively carried out.

Who provides lead case management? A professional team, usually under health-department direction, and including:

- *Case manager— coordinates care.* Usually a public health nurse. Visits the home, assesses lead-exposure factors, writes management plan, provides family lead education and referrals as needed, coordinates the effort of the team, assures plan completion, and evaluates the effort.

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ALLIANCE TO END CHILDHOOD LEAD POISONING

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- *Environmental inspector—identifies lead hazards.* Usually a licensed inspector. Performs systematic investigation of child's environment, recommends ways to stop exposure, writes and enforces orders requiring property owners to remediate hazards.
- *Health-care provider— provides medical management.* Usually the child's regular health-care provider. Furnishes follow-up testing and medical and nutritional treatment when necessary, and supports management plan.

Who pays for lead case management? *Various sources, often publicly funded.*

- For Medicaid beneficiaries, Medicaid should cover the costs of care coordination, medical management, and environmental inspection, pursuant to federal requirements.
- For others, costs may be paid for by private insurers or covered by public funding of health department services, depending on state and local resources and requirements.

Who pays for permanent removal of lead hazards and family relocation?

Various sources, often privately funded.

- Hazard remediation is usually paid for by property owners. Federal loans or grants may be available.
- Family relocation is often paid for by a combination of public and private funds.

What is the key to successful lead case management? *Coordination, communication, and cooperation among the members of the professional team and the family of the lead poisoned child.*

Where can I get more information on lead case management? A forthcoming report from the CDC Advisory Committee on Childhood Lead Poisoning will have background and recommendations. Check the CDC website (www.cdc.gov) or contact the Alliance To End Childhood Lead Poisoning at 202-543-1147 or on the web at www.aeclp.org. A list of resources is available from the National Center for Lead-Safe Housing at www.leadshousing.org.