IOWA Health and Human Services
Public Health

Childhood Lead Poisoning Prevention Program

Case Management Guidelines

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Purpose Statement

The Iowa Department of Health and Human Services (HHS) Childhood Lead Poisoning Prevention Program created the *Case Management Guidelines* to share guidelines and tools amongst all State and local public health case managers for children that are lead poisoned as a mechanism to ensure quality case management and all required services are offered to those children and their families.

These guidelines focus on case management for children under the age of six years old with confirmed blood lead levels of ten or above. Other tools and resources that address screening, testing, database entry and guidelines for children with blood lead levels below ten are available; contact the HHS Childhood Lead Poisoning Prevention Program for these other resources. All required services for lead poisoned children under the age of six years old are listed and explained in these guidelines.

In these guidelines, tools such as a table with services to be provided according to blood lead level, a table with follow up testing guidelines according to blood lead level, a questionnaire covering health history and possible routes of exposure, a plan of care template and links to other resources are provided. While the guidelines for services and follow up testing are to be followed, the environmental questionnaire and plan of care template are provided as optional tools for use.

The guidelines and tools provided are to ensure all case managers of children under the age of six years old with blood lead levels of ten or above have access to resources to be able to work toward successful outcomes in every case. Case managers should be sure to save this manual where it can be easily referenced for use in every case.

Case Management of Children with Confirmed Blood Lead Levels Greater than or Equal to 10 Micrograms per Deciliter

Designation of Case Manager

Each child with a confirmed blood lead level greater than or equal to 10 micrograms per deciliter (µg/dL) must be assigned a case manager and provided an individual plan of care. The case manager is responsible for ensuring the child is referred for all required services. Case management includes tracking the actions needed for each child, who is responsible, when those actions are completed and what information to enter into the surveillance data system. A plan of care template is provided later in this document.

Any child with a blood lead level less than 10 micrograms per deciliter is not required to be assigned a case manager; for more information, refer to the “Iowa Lead Poisoning Risk Questionnaire and Blood Lead Testing Guidelines”.

Clinical Case Management

Clinical case management includes coordination of services and activities, within a jurisdiction, with medical providers, Title V Child Health, Women, Infants and Children (WIC), community organization and/ or other child health programs that may be involved in the management of lead-poisoned children. While the medical provider is responsible for their patients' care, the clinical case manager will coordinate with medical providers to ensure appropriate medical services are provided. Medical providers are responsible for providing a physical examination, providing patient education to the child’s guardian(s), testing for iron deficiency and scheduling follow-up blood lead testing.

Environmental Case Management

Environmental case management includes coordination of services and activities, within a jurisdiction, as related to the child’s environment. These services may include an environmental investigation in dwellings associated with the child and follow up to verify that hazards identified have been addressed.

Explanation of Services

Health Education

The medical provider is responsible for explaining the results of the blood lead analysis and providing initial education regarding lead poisoning in children to the child's guardian(s). It is very important for the medical provider to explain when the child should be tested again and why. Resources for health education related to blood lead poisoning in children can be found at the Childhood Lead Poisoning Prevention Program webpages or in your program's contract/ claims site.

The clinical case manager is responsible for ensuring health education is provided as part of all services and contacts with the child and child's guardian(s).

Communication and Coordination with Physicians

The clinical case manager is responsible for ensuring communication and coordination is part of all services and contacts with the child's physician. The case manager should also review the recommended follow-up blood lead testing schedule with the medical provider to ensure the provider and the case manager are giving consistent information to the guardian(s). The case manager should communicate progress and outcomes of the services provided.

Physical Examination

Children with confirmed blood lead levels greater than or equal to 20 µg/dL should have a physical examination. Often, these children will not have physical findings specific for lead toxicity. However, a physical examination is still recommended to assess the child for iron deficiency and for any findings suggestive of encephalopathy. A serum ferritin or serum iron and iron binding capacity test should be used to determine whether the child is deficient in iron.

Hemoglobin or hematocrit should not be used because these tests are not sensitive enough for children with elevated blood lead levels. If the provider suspects that a child may have ingested paint chips, an abdominal radiograph may be ordered to evaluate this suspicion.

Follow-Up Blood Lead Testing

The medical provider is responsible for communicating the need for follow-up blood lead testing and setting future testing appointments with the guardian(s). The case manager

should coordinate with the medical provider to ensure follow up testing appointments are made and attended. The case manager may send reminders to the guardian(s) to schedule follow up testing with their providers. A follow-up blood lead testing timeline is provided later in this document.

Home Nursing Visit

Each child with a confirmed blood lead level greater than or equal to 15 µg/dL must receive a home nursing visit. This is an important opportunity to educate guardians and caregivers about the risks associated with an elevated blood lead level, what can be done to eliminate the child's exposure to lead and the importance of follow-up testing.

The home nursing visit should include a visual assessment to determine possible sources of lead exposure and providing education concerning nutrition, hygiene and home cleanliness.

The home nursing visit should include reminding guardian(s) and caregivers to:

- Make and keep follow-up appointments for blood tests.
- Notify the case manager if the child moves to a new residence.
- Inform health care providers that the child had an elevated blood lead level.

The nursing visit can be conducted by a nurse, an EBL inspector or any other child health services provider. The home nursing visit may occur at the same time as an EBL inspection/ lead hazard risk assessment.

Nutrition Assessment and Education

Children with confirmed blood lead levels greater than or equal to 10µg/dL and their guardian(s) and caregivers should receive a nutritional assessment or nutrition education. If the child is receiving WIC services, the child may have already received a nutritional assessment, the guardian(s) should be advised to ask their WIC provider about additional nutritional concerns in a child with lead poisoning.

For children that do not receive WIC services, the Iowa Department of Health and Human Services allows the use of a nurse or case manager to provide nutritional education as part of the Childhood Lead Poisoning Prevention Program required services. A link to a nutrition education document is provided in the resources.

Developmental Assessment

Children with a confirmed blood lead level greater than or equal to 20 µg/dL will be referred for a developmental assessment to the local Early Access Program if the child is under the age of 3 years. If the child is 3 years or older, the child will be referred to the Early Childhood Special Education Program. The referral for developmental assessment should be made at the time of the home nursing visit or earlier.

Chelation Therapy

The Iowa Poison Control Center recommends chelation for children with blood lead levels of 45 µg/dL or above; children with blood lead levels greater than or equal to 70 µg/dL should be treated in a pediatric intensive care unit. Contact the Iowa Poison Control Center for guidance on chelation at 800-222-1222. If chelation therapy is needed, an in-home inspection is needed.

Criteria for Medical Case Closure

Medical cases can be closed under the following circumstances:

1. The child has had three blood lead levels less than 15 µg/dL or two blood lead levels less than 10 µg/dL.
2. The family has moved from the state and the case has been transferred to another state.
3. The child has reached the age of 6 years and has a blood lead level less than 20 µg/dL.

*For any child 6 years old or older, contact the Department of Health and Human Services Childhood Lead Poisoning Prevention Program for further guidance.

For case closure in the database, refer to the HHLPSS Manual.

Environmental Investigation

An environmental investigation includes conducting an EBL inspection/ risk assessment and a clearance inspection once repairs are completed.

EBL Inspection and Lead Hazard Risk Assessment

The environmental case manager is responsible for ensuring an EBL inspection is conducted by a certified EBL inspector/ risk assessor for all children who have had a single confirmed venous blood lead level greater than or equal to 20 µg/dL or two confirmed blood lead levels of 15 to 19 µg/dL. The two levels of 15 to 19 µg/dL do not need to be consecutive or taken within a specific period.

Determine the age of the primary home where the child lives at the time of case identification.

- If the home was built prior to 1978, lead paint may be present and EBL inspection is required.
- If the home was built after 1978, an EBL inspection may not be warranted, but a lead hazard risk assessment should be conducted to determine other possible sources of lead.

Identify associated addresses which include daycare, the homes of other relatives or close friends, or anywhere the child spends time.

A worksheet for conducting an environmental investigation is provided later in this document.

Follow-Up After Lead Hazard Identification

The environmental case manager is responsible for ensuring an EBL inspection report including lead hazard identification, the lead hazard risk assessment and remediation suggestions is provided to the guardian(s) and the property owner if owned by someone other than the guardian(s). Follow up will be conducted on a regular basis to monitor the mitigation of identified hazards and to determine when a property is ready for a clearance inspection.

At least once within 6 months of initial inspection and then annually, the owner of the inspected property must be contacted to see how the lead hazard repair work is progressing. If the owner has made progress on the property, an EBL inspector or risk assessor may reinspect it to ensure that the work is being done safely. Once the lead hazard repair work has been completed, a clearance inspection may be scheduled.

Clearance Inspection

The environmental case manager is responsible for ensuring a clearance inspection is conducted.

Clearance inspections take place in two steps. The first is a visual assessment to verify that the needed work is actually done, and that there are no accumulations of dust, paint chips, bare soil in the dripline, or other debris associated with the hazards. The property must pass the visual assessment before the second step can take place.

The second step of a clearance inspection consists of environmental dust samples to identify lead dust, which the naked eye cannot identify. The dust samples must all be below the applicable clearance standards in order for the property to pass the clearance inspection. Additional cleaning and dust sampling are required until all of the dust samples are below the applicable clearance standards.

Once the property passes clearance inspection, a lead-safe letter should be sent.

Criteria for Environmental Case Closure

Environmental cases can be closed in the surveillance data system by the environmental case manager if

- No lead hazards are identified in the property
- The property has passed clearance inspection
- The property has been demolished. It must be confirmed.

For case closure in the database, refer to the HHLPSS Manual.

Schedule for Obtaining Confirmatory Venipunctures

All capillary blood lead levels greater than or equal to 10 micrograms per deciliter must be confirmed with venous blood lead measurements. Confirmatory testing will be done according to the following schedule:

Capillary Blood Lead Level	Timeline for Confirmatory Venous Blood Lead Test
10 – 14 µg/ dL	Within 3 months
15 – 19 µg/ dL	Within 1 month
20 – 44 µg/ dL	Within 1 week
45 – 69 µg/ dL	Within 48 hours
Greater than 70 µg/ dL	Immediately

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Note: These blood lead testing guidelines are for children ages 0 to 5 years. Contact the Childhood Lead Poisoning Prevention Program, Iowa HHS, for recommendations on testing children 6+ years and adults.

Services According to Venous Blood Lead Levels

Venous Blood Lead Level	Clinical Services	Environmental Services
10 – 14 µg/ dL	▸ Education about lead poisoning, importance of good nutrition and good housekeeping ▸ Refer for medical evaluation - Test for iron deficiency	No environmental investigation required
15 – 19 µg/ dL **Refer case within 4 weeks*	▸ Education about lead poisoning, importance of good nutrition and good housekeeping ▸ Refer for medical evaluation - Test for iron deficiency ▸ Refer to dietician **Within 6 weeks* ▸ Public health nurse visit **Within 4 weeks*	Environmental investigation after two venous levels of 15 – 19 µg/ dL **Investigate within 4 weeks*
Greater than or equal to 20 µg/ dL **Refer case within 48 hours*	▸ Education about lead poisoning, importance of good nutrition and good housekeeping ▸ Refer for medical evaluation and follow-up - Test for iron deficiency **Within 5 days* ▸ Refer to dietician **Within 5 days* ▸ Public health nurse visit **Within 5 days* ▸ Refer for developmental evaluation ▸ Frequent medical follow-up	Environmental investigation after venous level greater than or equal to 20 µg/ dL **Investigate within 4 weeks*
Greater than or equal to 45 µg/ dL **Refer case within 24 hours*	▸ Education about lead poisoning, importance of good nutrition and good housekeeping ▸ Refer for medical evaluation and follow-up - Test for iron deficiency **Within 48 hours* ▸ Chelation ▸ Refer to dietician **Within 48 hours* ▸ Public health nurse visit **Within 48 hours* ▸ Refer for developmental evaluation ▸ Frequent medical follow-up	Environmental investigation **Investigate within 5 working days* For outpatient chelation, child must be in a lead-safe environment For inpatient chelation, child must return to a lead-safe environment
Greater than 70 µg/ dL **Immediately*	**Environmental investigation within 48 hours* Emergency (immediately) chelation, medical evaluation, nutrition, home nursing visit; provide education and referral for developmental evaluation	

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Follow Up Testing of Venous Blood Lead Levels

Venous Blood Lead Level	Regular Retesting Timeline	Return to Regular Testing Schedule **Regular Testing Schedule included in "Iowa Lead Poisoning Risk Questionnaire and Blood Lead Testing Guidelines"*
10 – 14 µg/ dL	▸ Venous level retest every 12 weeks	After two venous blood lead levels less than 10 µg/ dL or Three venous blood lead levels less than 15 µg/ dL
15 – 19 µg/ dL	▸ Venous level retest every 12 weeks	After two venous blood lead levels less than 10 µg/ dL or Three venous blood lead levels less than 15 µg/ dL
Greater than or equal to 20 µg/ dL	▸ Venous blood lead every four to six weeks until level drops to less than 20 µg/ dL	After venous blood lead level drops to less than 20 µg/ dL, test every 12 weeks until two venous blood lead levels less than 10 µg/ dL or Three venous blood lead levels less than 15 µg/ dL
Greater than or equal to 45 µg/ dL	Venous blood lead every 4 to 6 weeks if no additional chelation **Refer all chelation cases to the Iowa Poison Control Center: 800-222-1222**	After venous blood lead level drops to less than 20 µg/ dL, test every 12 weeks until two venous blood lead levels less than 10 µg/ dL or Three venous blood lead levels less than 15 µg/ dL

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Note: These blood lead testing guidelines are for children ages 0 to 5 years. Contact the Childhood Lead Poisoning Prevention Program, Iowa HHS, or recommendations on testing children 6 + years and adults.

Plan of Care Checklist Template

Services to Be Provided or Referred	Action Level	Applicable Service Based on Blood Lead Level (Y/N)	Timeline or Due Date for Services to Be Provided or Referred	Agency or Person that Will Provide Service	Complete ✓	HHLPSS Entry Code(s)
Assure Confirmatory Venous	≥ 10 µg/dL					N/A
Assign Case Manager	≥ 10 µg/dL					Case Initiation – Assign Case Manager
Provide Lead Poisoning Education to Guardian(s)	≥ 10 µg/dL					▪ Contact Attempt – Mail or Phone ▪ Contact Tenant – Mail or Phone
Communication/ Coordination with Medical Provider	≥ 10 µg/dL					▪ Medical Consultation ▪ Other Action
Assuring Follow-up Blood Lead Testing	≥ 10 µg/dL					▪ Contact Attempt – Mail or Phone ▪ Contact Tenant – Mail or Phone
Referral for Nutrition Assessment	≥ 15 µg/dL					▪ Nutrition
Home Nursing Visit	≥ 15 µg/dL					▪ Follow-up Home Visit-Nurse ▪ Initial Home Visit-Nurse

Services to Be Provided or Referred	Action Level	Applicable Service Based on Blood Lead Level (Y/N)	Timeline or Due Date for Services to Be Provided or Referred	Agency or Person that Will Provide Service	Complete ✓	HHLPSS Entry Code(s)
Environmental Investigation/ Initial Interview	15-19 µg/dL x 2 or ≥ 20 µg/dL					▪ Contact Tenant – Mail or Phone
Elevated Blood Lead (EBL) Inspection/ Lead Hazard Risk Assessment	15-19 µg/dL x 2 or ≥ 20 µg/dL					▪ Inspection Other ▪ Other Action
Assurance of Lead Hazard Remediation	15-19 µg/dL x 2 or ≥ 20 µg/dL					▪ Inspection, Abatement-Interior ▪ Inspection, Abatement-Exterior ▪ Inspection, Abatement-Both
Physical Evaluation by a Physician	≥ 20 µg/dL					▪ Medical Consultation ▪ Other Action
Referral for Developmental Assessment	≥ 20 µg/dL					▪ Referral for Developmental Assessment
Consult with Iowa Poison Control Center, RE: Chelation	≥ 45 µg/dL					▪ Other Action

Environmental Investigation Worksheet

Child's Information

Child's Name

Child's Date of Birth

Child's Address

County

Year Built

Guardian 1 Information

Name

Phone

Address

Occupation

☐ Own ☐ Rent Year Built:

Landlord's Address *(if renting)*

Landlord's Phone *(if renting)*

Guardian 2 Information

Name

Phone

Address

Occupation

☐ Own ☐ Rent Year Built:

Landlord's Address *(if renting)*

Landlord's Phone *(if renting)*

Day Care or Alternate Address*

Day Care Provider or Alternate Address

Phone

Year Built

**If applicable*

Child's History

Primary Care Physician (PCP) Name

PCP Phone

PCP Address

PCP Fax

Medicaid

- ☐ Yes
- ☐ No

Member number

Women, Infants, and Children (WIC)

- ☐ Yes
- ☐ No

Sex

- ☐ Male
- ☐ Female
- ☐ Unknown

Race

- ☐ American Indian or Alaskan Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Pacific Islander
- ☐ White
- ☐ Unknown

Ethnicity

- ☐ Hispanic
- ☐ Non-Hispanic
- ☐ Other

Medications and Vitamins

Evidence of PICA

Iron Level Tested

☐ Yes ☐ No

Iron Supplements Prescribed

☐ Yes ☐ No

Hand to Mouth Activity

☐ Yes ☐ No

Environmental - Primary Residence

Type of Dwelling

Time Resided

Condition of Dwelling

Age of Dwelling

- ☐ Before 1940
- ☐ 1941 - 1959
- ☐ 1959 - 1978
- ☐ 1978 - present

Environmental - Primary Residence

Recent Renovation

- ☐ Sanding
- ☐ Scraping
- ☐ Heat Gun
- ☐ Stripper

Hobbies and Foods

- ☐ Fishing (lead sinkers)
- ☐ Target practice, bullet-making
- ☐ Stained Glass
- ☐ Pottery or Ceramics
- ☐ Foreign Candy
- ☐ Foreign Spices

Child's Hygiene

- ☐ Good
- ☐ Fair
- ☐ Poor

Pets

- ☐ Inside
- ☐ Outside
- ☐ Unsanitary

Where Does Child Play

- ☐ Inside
- ☐ Outside

Bare Soil

- ☐ Yes
- ☐ No

Housekeeping

- ☐ Excellent
- ☐ Good
- ☐ Fair
- ☐ Poor
- ☐ Heavy Dust
- ☐ Clutter
- ☐ Foul Odor

Additional Notes:

Resources

Iowa HHS Childhood Lead Poisoning Prevention Program Webpage: https://hhs.iowa.gov/programs/programs-and-services/childhood-lead-poisoning-prevention-program

Providers

- **"Iowa Lead Poisoning Risk Questionnaire and Blood Lead Testing Guidelines":** https://hhs.iowa.gov/media/3459/download?inline
- **"Guidelines for Treatment and Follow Up on Childhood Blood Lead Levels":** https://hhs.iowa.gov/media/3461/download?inline

Parents/ Guardians

- **"Fight Lead Poisoning with Nutrition":** https://wicworks.fns.usda.gov/resources/fight-lead-poisoning-healthy-diet
- **"What Your Child's Capillary Level Means":** https://hhs.iowa.gov/media/3360/download?inline
- **"What Your Child's Venous Level Means":** https://hhs.iowa.gov/media/3363/download?inline
- **"Check Your Home and Toddler for Lead":** https://hhs.iowa.gov/media/3357/download?inline

**Other language versions may be available at the Childhood Lead Poisoning Prevention Program Webpage.*

Control of Lead-Based Paint Hazards, Administrative Rule - Chapter 68: https://www.legis.iowa.gov/docs/iac/chapter/641.68.pdf

Department of Inspections, Appeals & Licensing Lead Professional Certification: https://dial.iowa.gov/i-need/licenses/building/lead

- "How to Protect Iowa Families": https://dial.iowa.gov/media/8605/download?inline=
- Lists of Certified Professionals: https://dial.iowa.gov/media/8384/download?inline
- Lead-Based Paint Activities, Administrative Rule - Chapter 70: https://www.legis.iowa.gov/docs/iac/chapter/641.70.pdf
- Renovation, Remodeling, and Repainting– Lead HazardNotification Process, Administrative Rule - Chapter 69: https://www.legis.iowa.gov/docs/iac/chapter/641.69.pdf

Environmental Protection Agency (EPA): https://www.epa.gov/lead

Iowa Poison Control Center: https://www.iowapoison.org/

State Hygienic Laboratory: https://www.shl.uiowa.edu/

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