

# **Childhood Blood Lead Case Management Guidelines for Minnesota**

## **Reference Manual**

**Developed by:  
State and Local Public Health Officials  
and Private Health Care Agencies**

**April 2001  
Revised: May 2011**



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## Acknowledgments

Minnesota Department of Health (MDH) staff worked in collaboration with local public health lead programs and the Council of Health Plans to create and update the blood lead CASE MANAGEMENT guidelines in this document. Special thanks go to the following local public health lead program representatives from throughout the state of Minnesota (MN) for their vision, intensive time commitment, and dedication to seeing this project through:

### **2000 Work Group:**

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Dianne Kelly, Dakota County Public Health Department  
Cheryl Lanigan, Minnesota Visiting Nurse Agency  
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Mary Ellen Smith, St. Paul - Ramsey County Department of Public Health  
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Janice Springer, Stearns County Human Services  
Larry Sundberg, St. Louis County Public Health.

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A second group met in February 2006 to discuss needed changes to the Childhood Blood Lead Case Management Guidelines for Minnesota. Some partners were not able to attend the meeting, but did give input that helped shape the revisions. MDH would like to acknowledge and thank the following group for their time and commitment to keeping the guidelines as applicable and current as possible.

### **2006 Revision Group:**

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*If you require this document in another format,*

*call (651) 201-5000; or 1 (800) 657-3908; or MDH TTY 651-201-5797*

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Janelle Schroeder, Kanabec County  
Bruce Scott, Bloomington Public Health  
Mary Ellen Smith, St. Paul - Ramsey County Department of Public Health  
Carol Wentworth, Carver County

In response to concerns over possible effects at low levels of lead exposure, House File No. 419 was passed during the 2009-2010 Legislative session, mandating a revision of the clinical and case management guidelines to include recommendations for protective health actions and follow-up services when a child's blood lead level exceeds 5 µg/dL.

Before making any revisions to the clinical treatment and case management guidelines, MDH recruited a group of knowledgeable and experienced individuals in the areas of lead testing in children, management of lead poisoning cases, and lead hazard reduction. Expert panel members included representatives from public health agencies, health plans, and a nonprofit specializing in lead hazard reduction, a physician representing the Minnesota Medical Association, and key MDH staff.

A lead clinical and case management guideline revision meeting was held on November 10, 2010 and was facilitated by MDH. Prior to the meeting, attendees were sent materials for review including current guidelines, a review of relevant published literature, and background data from the MDH blood lead surveillance database

MDH would like to thank the following group for their ongoing contributions to lead poisoning prevention and efforts to ensure that Minnesota guidelines reflect current best practices.

**2011 Revision Group:**

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*call (651) 201-5000; or 1 (800) 657-3908; or MDH TTY 651-201-5797*

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## Introduction: Background and Purpose

In 1998, the most recent year for which data has been analyzed—approximately 2,500 Minnesota CHILDREN under the age of six had ELEVATED BLOOD LEAD LEVELS\* (EBLLs). A variety of programs are in place across the state to manage the services that are available for these children. Assuring that children receive appropriate services and standardized protocols after they were diagnosed with an EBLL. By early 1999, the need for standardized protocols, which could be applied statewide, became apparent. An informal needs assessment was conducted by telephone, in an effort to get a sense of the follow-up procedures employed by local public health programs and their partners. A more formal needs assessment was done in those non-metro counties where EBLL risks are the highest. These assessments concluded that:

- most counties did not have standard protocols for following children with elevated lead levels,
- some counties were relying on outdated surveillance and education information to guide their lead activities,
- some counties had not identified lead exposure as a problem in their communities, and
- most counties wanted a clear description of how to follow and manage a case, as well as clear determination for when to close a case.

A work group—the Blood Lead Case Management Work Group (CMWG)—was convened and held its first meeting on December 15, 1999. This group represented a cross-section of the skills and experience required to conduct comprehensive lead case management, and included public health nurses, and lead risk assessors. The CMWG was comprised of MDH staff and the following local public health lead program representatives from throughout the state of Minnesota:

Joe Jurusik.....Hennepin County Community Health Department  
Dianne Kelly .....Dakota County Public Health Department  
Cheryl Lanigan.....Minnesota Visiting Nurse Agency (MVNA)  
Myna Peterson.....Goodhue County Public Health Service  
Mary Shea .....Minnesota Visiting Nurse Agency (MVNA)  
Mary Ellen Smith.....St. Paul - Ramsey County Department of Public Health  
Michelle Sonnabend.....Countryside Public Health Service\*\*  
Janice Springer.....Stearns County Human Services  
Larry Sundberg.....St. Louis County Public Health

\* The first time a word appears in this document that is defined in the Commonly Used Terms list, it will be shown in SMALL CAPITAL LETTERS.

\*\* Countryside Public Health Service serves the counties of Big Stone, Chippewa, Lac Qui Parle, Swift, and Yellow Medicine.

Most members of the CMWG along with MDH staff became members of a number of sub-committees. These sub-committees worked on specific areas of concern that the CMWG felt should be covered in the final report. In order to save time, these smaller sub-committees were convened to create drafts for the CMWG to critique. This sometimes required the sub-committee to reconvene and work on problem areas the CMWG had found. The subcommittee would then present a new draft to the CMWG for critique. The creation of the original version of the case management guidelines took approximately a year, and required a great deal of time and effort from the CMWG.

The case management guidelines outlined in this document are a result of the efforts described above, and a response to the identified need for statewide guidelines in this area. MDH has continued to evaluate the guidelines, updating them in 2006 and 2011. Changes will be made as needed, based on evaluation results. The guidelines are intended to serve as minimum case management guidelines for providing services to children with EBLLs. They were developed to establish minimum levels of care and are not intended to limit the level of care provided. Those counties that have greater resources available may wish to take a more rigorous approach to case management. The MDH created a BLOOD LEAD SCREENING document in March 2000 entitled, *Childhood MDH Blood Lead Screening Guidelines for Minnesota* (Appendix A). In addition to guidelines for children, in 2004, the MDH has released guidelines document for use with pregnant and breastfeeding women. “The Blood Lead Screening Guidelines for Pregnant Women in Minnesota” (Appendix D). A document created for use in a clinical setting by physicians and other health care professionals was released in March 2001 and updated in 2010 entitled, *Childhood Blood Lead Clinical Treatment and updated in 2010 Guidelines* (Appendix B). We encourage you to use all of these documents together with the one-page *Childhood Blood Lead Case Management Guidelines* (Appendix C) to provide comprehensive case management for children with an EBLL.

Lead exposure at high levels (>10 micrograms of lead per deciliter of whole blood,  $\mu\text{g/dL}$ ) has been shown to have an adverse effect on cognitive function in children. Mosby's Medical Dictionary defines cognitive function as “an intellectual process by which one becomes aware of, perceives, or comprehends ideas. It involves all aspects of perception, thinking, reasoning, and remembering.” There is growing evidence that exposure to lead at low levels (<10  $\mu\text{g/dL}$ ) may also have a negative effect on cognitive functioning in children. In response to concerns over the effects of low-level lead exposure in children, the 2009-2010 Legislature directed the Minnesota Department of Health (MDH) to revise clinical and case management guidelines to include recommendations for protective health actions and follow-up services when a child's blood lead level (BLL) exceeds 5  $\mu\text{g/dL}$ .

Before making any revisions to the clinical treatment and case management guidelines, MDH recruited an expert panel consisting of highly knowledgeable and experienced individuals in the areas of lead testing in children, management of lead poisoning cases, and lead hazard reduction. The expert panel included representatives from public health agencies, health plans, and a nonprofit organization specializing in lead abatement, a physician representing the Minnesota Medical Association, and key MDH staff.

A lead clinical and case management guideline revision meeting was held on November 10, 2010. All panel members agreed that as the levels increase there is greater harm to cognitive functioning in children and that there is no “safe” level of lead exposure. In addition, all panel members agreed that primary prevention (e.g. reducing lead hazards based on housing characteristics rather than blood lead testing) must be a priority to help reduce lead exposure in children.

Changes made to both sets of guidelines included adding new guidelines for BLLs between 5 and 9.9 µg/dL, and shifting some of the guidelines previously listed for all BLLs < 10 µg/dL to a new category of all BLLs < 5 µg/dL. In addition, for the 5-9.9 µg/dL range, a recommendation was added for a confirmatory venous test within 3 months to ensure that medical management is targeted only to those cases with confirmed lead exposure above 5µg/dL.

The final guidelines presented in this report balance concerns over low-level lead exposure and concerns over the best use of limited resources. The new guidelines reflect, to the best extent possible, the diverse recommendations of the expert panel. The guidelines have been reviewed and endorsed by the Minnesota Medical Association and the Minnesota Nurses Association and released for use by health care practitioners. While recommendations for test results < 10 µg/dL are appropriate, it is critical to remember that results > 10 µg/dL are, and should remain, the highest priority for medical and public health resources.

These guidelines are not statutory requirements. The objective is to ensure that a qualified CASE MANAGER is available to oversee the treatment and recovery of each child, and to ensure that steps are taken to prevent further exposure of the child to potential sources of lead. Because this document is designed to serve the needs of local health agencies in all parts of the state, the appendices may need to be “customized” in order to reflect local resources and needs. Links to other resources can be found on MDH’s Lead website:

<http://www.health.state.mn.us/divs/eh/lead/links.html>

## Overview of the Guidelines

The recommendations, which follow in this document, were developed to ensure that all children in Minnesota with an elevated BLOOD LEAD LEVEL are receiving a standardized, minimum amount of care for actual and potential lead exposure. For some agencies, and case managers, these recommendations may seem rudimentary. For others, the contents of this document may be their introduction to both the topics of lead, and case management. The recommendations are intended to help build the capacity for providing lead services in each agency, which conducts home visits with families affected by lead. The wealth of experiences, which each professional will bring to the case management position, will enhance the recommendations outlined below.

Section (1) begins at a basic level by suggesting minimum qualifications for professionals who will become case managers. A recommended skill set, including strong communicative and collaborative competencies, recommended areas of training and knowledge, and suggested academic backgrounds, are provided.

In Section (2) an essential part of case management—the home visit—is reviewed. This section describes why a home visit occurs. It also provides essential steps necessary for completing an effective and thorough home visit.

Section (3) features a critical aspect of the case manager’s role—making REFERRALS. This section describes the “team” —or set of cross-disciplinary professionals with whom the case manager may likely collaborate to provide comprehensive services to children affected by lead. This section also refers the reader to MDH’s Lead website: <http://www.health.state.mn.us/divs/eh/lead/links.html>, which can be utilized by the case manager.

Although Section (4) is found within the body of the document, it is meant to stand alone as a hands-on tool for case managers. This “action plan” discusses the full spectrum of elevated blood lead levels, and appropriate remedial and protective actions, which may be taken at each level. To facilitate using this section as a convenient hands-on tool, the recommendations have been formatted to fit in a single table (see Appendix C). It is anticipated that this table may be posted in a visible location to aid case managers.

Perhaps the most challenging recommendations—from a case management perspective—appear in Section (5). This section attempts to define when a child, who has received case management services, no longer needs to be followed. The areas of CASE CLOSURE, which are usually monitored by a case manager, are featured. However, closure of an ENVIRONMENTAL CASE is also defined as a reminder of this important aspect of FOLLOW-UP services for children and families affected by lead.

Commonly used terms have been included in Section (6) to provide support for some of the case management, and lead-related terms, which are featured in this document. The first time a word appears in this document that is defined in the Commonly Used Terms list, it will be shown in CAPITAL LETTERS. Many of the definitions are a product of consensus brainstorming by members of the CMWG, based on their considerable experience in the field with children and

families. When possible, definitions were taken from Minnesota Statutes and Minnesota Rules to provide established meaning for these terms.

In the Appendices, a variety of tools are featured for the case manager to be used in the field when working with children and their families. We encourage you to make copies as needed, or request additional copies from MDH.

## **Recommended Minimum Qualifications for the Case Manager**

### **Role definition:**

The role of the case manager is to collaborate with clients by assessing, facilitating, planning, and serving as an advocate for their health needs on an individual basis.

Case management should be expected to achieve measurable results in terms of decreasing exposure, decreasing blood lead levels, and improving the health of children and their families, particularly young siblings. Programs that visit families multiple times without reducing the child's blood lead level are failing and need to reevaluate their procedures. Case management programs should be expected to measure and report relevant program outcomes. Program outcomes may include reduced blood lead levels and reductions in environmental LEAD HAZARDS. Lead hazard reduction may involve interventions ranging from cleaning and abatement, to emergency relocation.

Communication with the case management team is critical for effective case management. Team players include, but are not limited to: the case manager, the family, medical providers, the MDH, licensed LEAD RISK ASSESSORS, paraprofessional home visitors, local funding sources, and other community sources. The ability to work collaboratively with various outside groups and organizations to reach common goals is also essential. Recommended skills include: positive relationship building; ability to effect change, perform critical analysis, and efficiently plan and organize; effective written and verbal communication; and effective promotion of client/FAMILY autonomy. It is crucial that the case manager have knowledge of funding resources, services, clinical standards, and outcomes for EBLL prevention and treatment.

### **Recommended areas of knowledge and training:**

1. case management,
2. nutrition and hygiene,
3. growth and development,
4. physiology and adverse effects of elevated blood lead levels,
5. environmental sources of lead, and LEAD HAZARD REDUCTION methods, and
6. referral services/resources in the community and state.

### **Recommendation:**

The MDH recommends that the case manager be a professional with case management and lead training or experience. Recommended qualifications for a case manager are as follows:

- If possible, the case manager should be a public health nurse (PHN) with a four year nursing degree
- If a PHN is not available, the case manager should be a health professional (e.g., a health educator or a registered nurse (RN) without a bachelor's degree).
- If neither a PHN nor a health professional is available, the case manager can be any professional with a health-related degree (e.g., a social worker or risk assessor).

Contact the MDH for training information at 651-201-4892

## Home Visit Protocol

(Refer to Appendix C for recommendations on when to initiate a home visit.)

### Purpose:

1. To stop further lead exposure to children with EBLs and others in the home environment.
2. To increase the knowledge of those in the home about the nature of an EBL and how to resolve it.

### Steps:

1. Conduct an educational encounter using appropriate educational materials. The following list of materials is suggested and can be ordered from MDH. They are available in several languages (see Appendix E):

- Cleaning Up Sources of Lead in the Home
- Common Sources of Lead
- Steps to Help Lower Your Child's Blood Lead Level
- What is Lead?

This is best done in the home of the child with an EBL; however, according to methods described in this document and Minnesota State Statutes, it may be completed through a telephone call.

2. Opening statements should explain case management, the role of the case manager, the Tennessee statement utilized by your county, as well as obtaining a verbal or signed release of information statement. The release of information is highly valuable, as the case manager is the care coordinator for the child and must have access to talk with all involved when resolving the lead case.

### Sample role explanation:

*“Due to your child’s elevated blood lead level, I have been assigned to help you manage his/her lead level and the circumstances which have possibly contributed to the lead level. We will work together to ensure your child’s blood lead level and exposure to lead are reduced.”*

The case manager may utilize an **Educational Encounter & Assessment Form**. Two examples are found in **Appendix F**. S/he will assess the family’s educational needs and deliver appropriate informational brochures as well as hands-on teaching as needed. **It is recommended that the case manager utilize the MDH lead poisoning prevention educational materials found at:**

**<http://www.health.state.mn.us/divs/eh/lead/edumat/index.html>**

3. Conduct a cursory evaluation of the home including the age of the home, both interior and exterior (gardens, barns, fences, neighborhood) for environmental exposure sources of lead.
4. Share information with the environmental assessor and vice versa for purposes of case management and case closure.

5. Develop a care plan and assess the need for more visits after the initial assessment. When possible, it is recommended to complete at least one follow-up home visit. Consult and obtain M.D. orders as needed. This should be done in accordance with your agency policy, the level of nursing intervention provided, and the pay source utilized.
6. Alert the family regarding the hazards of lead reduction work and provide them with information on LEAD-SAFE work practices. Encourage the family to have the work done by a lead professional, and require children and pregnant or nursing women to vacate the premises during the work process.
7. Identify the property owner and obtain contact information. This may be done by the environmental risk assessor.
8. Encourage *blood lead testing* of other children less than 72 months of age, and pregnant women.
9. Refer the family to needed services. For example, assess the child's eligibility for the Supplemental Food Program for Women, Infants, and Children (WIC) to ensure that the child's nutritional needs are met. Refer to WIC's website at:  
<http://www.health.state.mn.us/divs/fh/wic/>

**A home visit should be conducted in the primary language of the family whenever possible.**

## **Referral Services: A Key Part of Case Management**

An extremely important aspect of the case manager's role is making referrals. The case manager is responsible for placing the family of a child with an EBLL in contact with services and resources that are available in the local community, or at the state or national level. Families that are working to resolve a lead exposure problem may need these resources.

The case manager has a unique opportunity to enter a home, complete an *ASSESSMENT*, and provide assistance to the family. The case manager's role is not limited to assisting with lead exposure prevention. It may also include helping families gain access to resources for addressing other issues. The case manager strives to involve a multi-disciplinary team of professionals in responding to each case of EBLL, coordinating their efforts and ensuring that they have enough information about each child's situation. Team players include, but are not limited to: the case manager, the family, medical providers, the MDH, licensed LEAD RISK ASSESSORS, paraprofessional home visitors, local funding sources, and other community sources. This process helps facilitate a successful resolution of the issues surrounding each case.

A *DEVELOPMENTAL ASSESSMENT* is a crucial part of the overall assessment for a child with an EBLL. It is strongly recommended that the child receive a developmental screening test. The child may need to be referred to a local community program that administers developmental screening tests. For advice on specific developmental tests, go to <http://www.health.state.mn.us/divs/fh/mch/devscrn/instruments.html>.

**MDH's Lead website at <http://www.health.state.mn.us/divs/eh/lead/links.html> can be used as a general guide in determining what resources may be needed by families dealing with lead issues. Because the needs of individual families can vary greatly, a wide variety of possible resources have been included. The case manager should become familiar with the resources available locally to address the various needs of the family. It takes creativity to meet the specific needs of each individual family. In cases where there is no local contact listed, the case manager should call the other agencies or organizations on the list, for help in obtaining information or resource**

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*based on blood lead levels* (see identical actions in table format - Appendix C)

**Reminder:** Blood lead testing is mandated by the federal government for all children receiving Medical Assistance (MA)/Medicaid. These tests should be performed at 1 and 2 years of age (or up to six years of age if not previously tested).

## **Action based on results of CAPILLARY tests (used for screening only):**

**<5 ug/dL** Provide educational materials to the family\*, including an overview of high risk categories.

**5-9.9 µg/dL** Provide educational materials\* to the family, including an overview of high risk categories. Contact the family with the recommendations to have a follow up venous test within three months.

**According to Minnesota State Statute, all childhood blood lead levels  $\geq 10 \mu\text{g/dL}$  are considered elevated.**

**10 - 14.9 µg/dL** **Within one month:**

- Provide educational materials\* to the family, including an overview of high risk categories
- Contact the family with the recommendation to have a follow-up venous test.

### **VENOUS RETEST WITHIN THREE MONTHS**

**15 – 44.9 µg/dL** **Within one week:**

- Provide educational materials\* to family, including an overview of high risk categories.
- Contact the family to have a follow-up venous test.
- If feasible contact the medical care provider regarding a follow-up venous test.
- Offer the medical care provider MDH’s screening, treatment, and pregnancy guidelines.

### **VENOUS RETEST WITHIN ONE WEEK**

**45-59.9 µg/dL** **Within two business days:**

- Provide educational materials\* to family, including an overview of high risk categories.
- Contact the family to have a follow-up venous test.
- Contact the medical care provider regarding a follow-up venous test.
- Ensure that the medical care provider is aware of the screening, treatment, and pregnancy guidelines available from the MDH.

### **VENOUS RETEST WITHIN TWO BUSINESS DAYS**

**$\geq 60 \mu\text{g/dL}$**  **Immediately:**

- Provide educational materials\* to family, including an overview of high risk categories.
- Contact the family to have a follow-up venous test.
- Contact the medical care provider regarding a follow-up venous test.
- Ensure that the medical care provider is aware of the screening, treatment, and pregnancy guidelines available from the MDH.

### **VENOUS RETEST IMMEDIATELY**

***Action based on results of VENOUS tests:***

*< 5 ug/dL Provide educational materials\*to the family, including an overview of high risk categories.*

*5-9.0 ug/dL Provide educational materials to the family, including an overview of high risk categories.*

*Ask questions to identify possible sources of lead in child's environment.*

**According to Minnesota State Statute, all childhood blood lead levels  $\geq 10$   $\mu\text{g/dL}$  are considered elevated.**

**10 - 14.9 µg/dL** Within one month:

- Provide educational materials\* to the family, including an overview of high risk categories.
- Contact family with the recommendation to have a follow-up venous test within three months from the last blood lead test.

**15 - 44.9 µg/dL** **Within one week:** Arrange for initial home visit.\*\* (in primary language when possible).

- Complete an in-depth assessment of: medical, environmental, nutritional, and developmental needs.
- Provide educational materials\* to the family, including an overview of high risk categories.
- Make necessary referrals.
- Communicate with the risk assessor assigned to the case.

Encourage the family to obtain a follow-up venous test *within three months* from the last test. Higher levels require more frequent monitoring.

Contact the family and/or medical care provider regarding the need for follow-up venous testing if venous follow-up not completed within three months from the last test.

**44 - 59.9 µg/dL** **Within two business days:** Arrange for initial home visit.\*\* (in primary language when possible).

- Complete an in-depth assessment of: medical, environmental, nutritional, and developmental needs.
- Provide educational materials\* to the family, including an overview of high risk categories.
- Make necessary referrals.
- Attempt to facilitate alternative, lead-safe housing.
- Communicate with the risk assessor assigned to the case.
- Contact the medical care provider to determine blood lead level, medical status, treatment and follow-up plans.

At this level the medical care provider will most likely provide chelation therapy (see MDH treatment guidelines) and the child will need more frequent monitoring of their blood lead level.

**≥ 60 µg/dL** **Immediately:** Arrange for initial home visit.\*\* (in primary language when possible).

- Complete an in-depth assessment of: medical, environmental, nutritional, and developmental needs.
- Provide educational materials\* to the family, including an overview of high risk categories.
- Make necessary referrals.
- Attempt to facilitate alternative, lead-safe housing.
- Communicate with the risk assessor assigned to the case.
- Contact the medical care provider to determine blood lead level, medical status, treatment and follow-up plans.

At this level the medical care provider will most likely provide chelation therapy (see MDH treatment guidelines) and the child will need more frequent monitoring of their blood lead level. The child may be hospitalized at this level.

## Case Closure

The ultimate objective of the case management process is to assure that both the medical treatment of the lead poisoned child is accomplished and the environmental exposure routes are addressed. Attainment of case closure status reflects the successful completion of a particular aspect of the case management process. The case manager is responsible for two different aspects of an EBLL case, and therefore two potentially different forms of case closure:

- **Medical closure:** is based on the blood lead level of the child and addresses the medical aspects of the EBLL case. This aspect of the case is addressed by both the child's primary care provider and the case manager. Medical closure is defined as one venous blood lead level less than 5 µg/dL.
- **Administrative closure:** indicates that the child can no longer be followed, for a variety of circumstances that are described below. The case manager must determine if an administrative closure is appropriate.

Administrative closure generally represents the end of the process for the case manager, with respect to lead, for that individual child. Circumstances that may necessitate issuing an administrative closure include:

- The blood lead level has been decreasing appropriately. The child is not currently in a lead-safe environment; however, steps are being taken to address lead exposure routes.
- The child is greater than 72 months of age, the blood lead levels are still elevated but show evidence of dropping, and the environmental LEAD ORDERS are complete.
- Factors unrelated to the medical or environmental circumstances, such as:
  - ✓ the child is lost to follow-up after three varied attempts to locate (\*see below)
  - ✓ the child has missed three consecutive clinic appointments
  - ✓ the child has moved out of the health district jurisdiction
  - ✓ the parent has refused services and has been given information about EBLs and lead hazard control, or
  - ✓ repeat visits are too dangerous due to weapons, drug dealing, etc. (Appropriate referrals should be made.)

\*Three varied attempts to locate the child should include a variety of the following:

- send a letter
- send a certified letter
- make a home visit
- inquire with the Women Infants and Children (WIC) contact
- inquire with the Welfare contact
- inquire with the Child Protection contact
- inquire with the physician
- inquire with the U.S. Post Office for a forwarding address
- inquire with the contact person given during admission

There are two key players in establishing closure on an EBLL case when an environmental case is open at the child's PRIMARY RESIDENCE. The Case Manager has the responsibility for determining when to close the case of the child (medical/administrative closure) while the licensed lead risk assessor is responsible for determining when to close the case of the property (environmental closure). A steady line of communication must be maintained between the licensed lead risk assessor and the case manager. In some counties, these may be the same person. Although the case manager does not have any direct responsibility for the environmental case, it is very important for the well being of the child to keep this communication open. The case manager will want to ensure the child has a lead-safe environment in which to live.

**Note:**

It is the responsibility of a licensed lead risk assessor to open an environmental case on a property when a venous EBLL is found that is greater than or equal to 15 µg/dL. An **environmental closure** occurs when all lead hazard reduction orders are completed and a CLEARANCE INSPECTION demonstrates no deteriorated lead paint, bare soil, or lead dust levels that exceed the state standards (*Minnesota Statutes 144.9504*). The case manager should be aware of this process as an indication of the mitigation of lead exposure routes for the child.

In order to attain a **complete closure**, both the medical (the child) and environmental (the property) closures must be complete. It may not always be possible to meet both sets of goals, however. It may sometimes be acceptable, and necessary, to achieve closure for one aspect of the case, but not the other. It could also be possible to close different aspects of the case at different times. For example, the lead hazard reduction orders may be complete (e.g. environmental closure is complete), yet the child's blood lead level remains elevated above 10 µg/dL (e.g. medical closure is not complete). Whenever there are separate environmental and medical closures in the same case, it is essential to maintain good communication between the licensed lead risk assessor, the case manager, the parent, and the child's primary care provider.

There may be unique circumstances associated with an individual lead case that would necessitate additional attention beyond lead closure. However, this should be determined on a case-by-case basis at the professional discretion of the case manager. Additional referrals to social service agencies or complimentary programs may also be considered, and is strongly recommended, depending on the specific circumstances of the case.

## Commonly Used Terms

Whenever possible the definitions in this section were taken from the Lead Poisoning Prevention Act, Minnesota Statutes Sections 144.9501-144.9509 and the Lead Poisoning Prevention Rules, Parts 4761.1000 to 4761-1220. In the absence of a specific statute citation, these definitions are a consensus of the Blood Lead Case Management Work Group. Any words that appear in CAPS have not been used in the text of the document, but are commonly used terminology in the lead field.

**Assessment:** The process of identifying the health status and service needs of the child and family. Relevant information such as environmental lead hazards, child's developmental status, needs of both the child and the family, etc. are gathered through interviewing the client/family in conjunction with careful evaluation of the entire situation. In the Case Management Society of America's, "CMSA's Standards of Practice," there are four categories of official assessments referred to: developmental, environmental, medical, and nutritional.

- **DEVELOPMENTAL ASSESSMENT:** In Minnesota, the primary recommendation is to refer the child to a local community program that administers developmental screening tests. There are several acceptable developmental assessment tests, which can be administered to a child, but some require specific certification. For advice on specific developmental tests go to:  
<http://www.health.state.mn.us/divs/fh/mch/devscrn/instruments.html>
- **ENVIRONMENTAL ASSESSMENT:** Includes a LEAD RISK ASSESSMENT, which necessitates determining a quantitative measurement of the lead content of paint, interior dust, and bare soil of residences where the child spends the majority of his/her time.
- **MEDICAL ASSESSMENT:** Blood lead level is the primary assessment data. Signs and symptoms should be assessed to determine whether chelation is indicated. (Physician ultimately determines this.)
- **NUTRITIONAL ASSESSMENT:** The nutritional status of the child should be evaluated for overall healthy eating with an emphasis on adequate intake of calcium, protein, vitamin C, and iron, and avoiding excess fats. A few assessment tools are available such as food intake recalls, or food diaries.

**Assessing Agency:** Assessing agencies are public health agencies with authority and responsibility to conduct lead risk assessments in response to children or pregnant women with EBLLs. Local assessing agencies are responsible within their respective jurisdiction. In locations where there is no local assessing agency, the MDH is responsible to conduct lead risk assessments.

**ASSURANCE:** Delivery and coordination of services to ensure that the agreed upon goals and needs of the client are met.

**BLOOD LEAD FOLLOW-UP:** Venous or capillary blood lead test performed to monitor the

child with an elevated blood lead level. (See Appendix C for details.)

**Blood Lead Level:** The concentration of lead in a sample of blood. Usually expressed in micrograms of lead per deciliter ( $\mu\text{g/dL}$ ) of whole blood.

**Blood Lead Screening:** A venous or capillary blood lead test performed on an asymptomatic child. (See Appendix A for specific recommendations.)

**Capillary:** A “capillary blood sample” means a quantity of blood drawn from a capillary vein. It generally is collected by fingerstick and should be confirmed using a venous sample when evaluating potentially elevated blood lead. (See Venous)

**Case Closure:** When a child, who has received case management services, no longer needs to be followed. Medical closure and administrative closure are described on page 12 of this document.

**Case Management:** The integration and coordination of multiple entities to assure that the medical treatment and environmental resolution for the child with an EBLL are accomplished. Case management involves assessment, problem identification, planning, monitoring, evaluation, referral, and advocacy. Case management is family focused.

**Case Manager:** Professional with training and ability in EBLL prevention and treatment, physiology, adverse effects of EBLL, growth and development, nutrition and hygiene. See the “Recommended Minimum Qualifications for the Case Manager” section in this document. In the role of Case Manager, one serves as an assessor, planner, facilitator, and an advocate for the child and family.

**CERTIFIED FIRM:** All privately licensed lead personnel (inspector, risk assessor, LEAD WORKER, LEAD SUPERVISOR) must be employed by a firm certified by the MDH, unless the licensed person is a sole proprietor with no employees.

**Child(ren):** An individual up to 72 months of age.

**Clearance Inspection:** A visual identification of deteriorated paint and bare soil and a resampling and analysis of interior dust lead concentrations in a residence to ensure that lead standards are not exceeded.

**CONFIRMATORY:** The first venous blood lead test following a screening test is considered a confirmatory blood lead test. (See Appendix C for time requirements.)

**Elevated Blood Lead Level(s) (EBLL):** A venous or capillary blood lead level of  $10 \mu\text{g/dL}$  or higher is considered elevated. A confirmatory test must be venous.

**Environmental Case:** When a venous EBLL is found that is greater than or equal to  $15 \mu\text{g/dL}$ , an environmental case is opened. This is required by Minnesota Statutes.

**Family:** Individuals consistently serving in the care-giving role for a child. A parent, foster parent, guardian, brother or sister may fill this role. In some cases, other members of the extended family such as an aunt, grandparent, or close friend may represent or substitute for the family.

**Follow-up:** See Blood Lead Follow-Up.

**Lead Hazard:** A condition that causes exposure to lead from dust, bare soil, drinking water, or deteriorated paint that exceeds the state standards.

**Lead Hazard Reduction:** Actions undertaken to make a residence, child care facility, school, or playground lead-safe by complying with the State lead standards and methods.

**LEAD INSPECTION:** An investigation to determine the presence of lead in dust, paint, soil, or water.

**LEAD INSPECTOR:** A person who is licensed by the MDH Commissioner to perform a lead inspection.

**Lead Orders:** A legal instrument to compel a property owner to engage in lead hazard reduction according to the specifications given by the assessing agency.

**Lead Risk Assessment:** An investigation to determine the existence, nature, severity, and location of lead hazards from dust, paint, soil, and water. A lead risk assessment may not include the use of sodium rhodizonate.

**Lead Risk Assessor:** An individual who performs lead risk assessments or lead inspections and whom the MDH Commissioner has licensed.

**Lead-Safe:** A condition in which lead may be present at the residence, child care facility, school, or playground, if the lead concentration in the dust, paint, soil, and water of a residence does not exceed state standards, or, if the lead concentrations in the paint or soil do exceed the standards, the paint is intact and the soil is not bare.

**Lead Supervisor:** An individual who is responsible for the on-site performance of REGULATED LEAD WORK, and who has been licensed by the MDH Commissioner.

**Lead Worker:** An individual who performs regulated lead work, and who has been licensed by the MDH Commissioner.

**MEDICAL CASE:** A blood lead level equal to or greater than 5 µg/dL in a child from birth to 72 months of age.

**Primary Residence:** The home of the parent or guardian in which the child spends the majority of their time.

**Referral(s):** The process of directing clients to available services by providing them with information about a specific program.

**Regulated Lead Work:** A lead hazard screen, a lead inspection, a lead risk assessment, lead hazard reduction including abatement, or a lead project design performed on or for affected property, whether required by law or undertaken voluntarily.

**SECONDARY RESIDENCE:** A home where the child spends more than a few hours a week. Examples include a second home, the home of a relative or daycare provider, etc.

**STATE CASE MONITOR:** The state case monitor will track the MDH blood lead surveillance database to ensure that: 1) reported cases of elevated blood lead are disseminated to the appropriate assessing agency; and 2) appropriate follow up activities are being coordinated by the assessing agency case manager. The state case monitor will act as an advisor for case managers at local public health and other agencies to increase their capacity to perform lead case management.

**Venous:** A “venous blood sample” means a quantity of blood drawn from a vein” —this is considered a confirmatory blood lead test. (See Appendix C)

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## **Appendices**

Appendix A - Childhood Blood Lead Screening Guidelines for Minnesota

Appendix B - Childhood Blood Lead Clinical Treatment Guidelines for Minnesota

Appendix C - Childhood Blood Lead Case Management Guidelines for Minnesota

Appendix D - Blood Lead Screening Guidelines for Pregnant Women in Minnesota

Appendix E - Recommended Educational Materials

Appendix F - Educational Encounter & Assessment Form

Appendix G - Sample Notification Letters

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## **Appendix A**

### **Childhood Blood Lead Screening Guidelines for Minnesota**

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## **Appendix B**

### **Childhood Blood Lead Clinical Treatment Guidelines for Minnesota**

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## **Appendix C**

### **Childhood Blood Lead Case Management Guidelines for Minnesota**

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## **Appendix D**

### **Blood Lead Screening Guidelines for Pregnant Women in Minnesota**

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## **Appendix E**

### **Recommended Educational Materials**

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## **Appendix F**

### **Educational Encounter & Assessment Form**

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## **Appendix G**

### **Sample Notification Letters**