

Environmental Health in Child Care: Lead version 2

(Last updated 6/7/13)

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NOTE TO TRAINER

This Module presents information about lead contamination and risks in the child care environment. Learning activities on this topic can be found in the *Environmental Health in Child Care: Lead Trainer's Toolkit*. The Toolkit contains a Trainer's Guide to leading training sessions, PowerPoint slides, and materials for participants' packets. Information about other environmental contaminants in the child care environment can be found in the *Environmental Health in the Child Care Environment Training Module* and accompanying Toolkit.

For more information about using the NTI materials, please read "Guidelines for Using the NTI Curriculum Materials," available in the "Curriculum" section of the NTI Resources Website (accessed by entering your NTI username and password at <http://sakai.unc.edu>).

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¹ Items in *bold italics* are defined in the glossary.

LEARNING OBJECTIVES

After reading this Module, Trainers will be able to:

- Discuss the *Caring for Our Children* National Standards (3rd ed., 2011) relevant to lead exposure in the child care environment
- Name the primary source and secondary sources of **lead** in the child care environment
- Describe the primary route of lead exposure for young children
- Describe the effect of lead exposure on the health of young children
- Determine what groups of children are most at risk for lead exposure
- Describe how to coordinate the identification of potential lead hazards in the child care environment
- Describe the actions necessary to prevent and manage lead exposure in the child care environment

INTRODUCTION

Research in the 1970s and 1980s demonstrated that seemingly healthy children with elevated levels of lead had reduced intelligence, greater language difficulties, impaired hearing, reduced stature, and more attention problems and behavior disorders compared to children with normal levels (National Research Council, 1993). As a result, lead was removed from two major sources: gasoline in the mid-1970s, and house paint in 1978. Despite these actions, lead poisoning continues to be “one of the most common public health problems for children” (The Environmental Quality Institute, 2005, p. 1). According to the Centers for Disease Control and Prevention (CDC), approximately 310,000 children in the United States between the ages of 1 and 5 have elevated blood lead levels², and yet “today, childhood lead poisoning is considered to be the most preventable environmental disease of young children” (CDC, 2008).

The Role of the CCHC

In a field such as environmental science where information develops rapidly and highly technical expertise is often required, an important role of the child care health consultant (CCHC) is to mediate communication between child care staff and environmental health specialists. Child care issues must be highlighted for environmental health specialists, and environmental health information may need interpretation and clarification for child care providers. The perspective of the child care provider with respect to environmental health issues is stated eloquently by Gratz and Boulton (1993):

“Even though we may not have the scientific background, we need to pay attention not as toxicologists, chemists, or environmental sanitation experts but as those who make the children’s and staff’s well-being a first priority. As informed directors we need to be aware of the young child’s heightened susceptibilities as well as our ongoing responsibilities to take care of children as best as we can when it comes to *environmental hazards*” (p. 30).

As outlined in the National Training Institute for Child Care Health Consultants’ (NTI) *Building Consultation Skills* Training Module, the knowledge and skills needed to be an effective CCHC includes 1) consultation, 2) resource and referral, 3) policy development, 4) advocacy, and 5) health education.

To mediate between the child care provider and environmental health specialists, in relation to the five major roles listed above, the CCHC can provide:

- *Consultation*: Conduct an assessment of potential lead problems in the child care setting (see Appendix A of this Module for an assessment tool). Work with **qualified lead professionals** when testing buildings and grounds for lead contamination.
- *Resource and Referral*: Contact local and state health departments to find qualified lead professionals in the provider’s area, as well as locations for blood testing. Connect these

² National data on the lead levels of children under the age of 12 months are limited because testing does not often occur for this age group (Norman, 2005).

specialists to child care staff. See the section on “Where To Find More Information” in this Module for a list of resources for finding state and local health departments.

- *Policy Development*: Ensure the child care setting has a lead abatement policy in place. If it does not, assist the child care facility in writing and implementing one, with the assistance of an environmental health specialist.
- *Advocacy*: Inform and work with local community groups to address the exposure to and treatment of lead in local child care settings.
- *Health Education*: Stay attuned to current trends and issues in the environmental health field via contact with an environmental health specialist. Train caregivers/teachers to identify potential lead hazards in the child care environment. Provide information for caregivers/teachers and families on recognizing signs of lead poisoning.

CARING FOR OUR CHILDREN NATIONAL STANDARDS (3rd ed., 2011)

Caring for Our Children: National Health and Safety Performance Standards: Guidelines for Early Care and Education Programs (CFOC) is a set of 686 attainable standards that are intended for use by health care professionals, trainers, regulators, caregivers/teachers, academics and researchers, parents/guardians, and others “who work toward the goal of ensuring that all children from day one have the opportunity to grow and develop appropriately, to thrive in healthy and safe environments, and to develop healthy and safe behaviors that will last a lifetime” (*CFOC* 3rd ed., 2011, p. xxi). These standards, supported by the Maternal and Child Health Bureau, were developed by the American Academy of Pediatrics, the American Public Health Association, and the National Resource Center for Health and Safety in Child Care and Early Education.

The following is a list of the standards relating to lead in the child care environment, along with a short description and the page number in *CFOC* on which the standard can be found. All listed standards are referenced throughout this Module.

[3.2.2.1](#) – Situations that Require Hand Hygiene, p.110

Specifies when the hands of staff, volunteers, and children should follow the procedure in Standard 3.2.2.2 for hand hygiene in the child care setting.

[4.5.0.2](#) – Tableware and Feeding Utensils, p. 178

Lists specific requirements for tableware and feeding utensils, including that all surfaces in contact with food should be lead-free.

[5.2.6.3](#) – Testing for Lead and Copper Levels in Drinking Water, p. 222

States that drinking water, including water in drinking fountains, should be tested and evaluated in accordance with the assistance of the local health authority or state drinking water program to determine whether lead and copper levels are safe.

[5.2.9.9](#) - Plastic Containers and Toys, p. 232

States that the facility should use infant bottles, plastic containers, and toys that do not contain Polyvinyl chloride, Bisphenol A or phthalates

[5.2.9.13](#) – Testing for Lead, p. 235

Explains the specific level of lead levels in paint that indicates a need for removal and what areas of the child care should be tested for lead.

[5.2.9.15](#) – Construction and Remodeling During Hours of Operation, p. 237

Specifies that construction, remodeling, painting, or alterations of structures during child care operations should be isolated from areas where children are present and done in a manner that will prevent hazards or unsafe conditions (such as fumes, dust, safety, and fire hazards).

[5.3.1.1](#) – Safety of Equipment, Materials and Furnishings, p. 237

Details how equipment, materials, furnishings, and play areas should be sturdy, safe and in good repair and should meet the recommendations of the U.S. Consumer Product Safety Commission

(CPSC) for control of a list of seventeen safety hazards, including lead paint. I paraphrased the last sentence because the list was too long.

[9.4.1.13](#) – Maintenance and Display of Inspection Reports, p. 384

Explains that the facility should maintain and display, in one central area within the facility, current copies of inspection reports required by the state licensing office.

WHAT THE CCHC SHOULD KNOW: LEAD IN THE CHILD CARE ENVIRONMENT

Lead is a highly toxic metal found in common items such as paint, toys, and lead-tainted soil. Because it does not break down over time, lead persists in the environment. Pre-1978 paint products are still largely responsible for the continuing high concentrations of lead found in buildings and in the soil around buildings constructed before that time.

Primary Source of Lead

Lead-based paints for houses were banned in 1978. However, the Centers for Disease Control and Prevention (2004) estimates that “approximately 24 million housing units in the United States contain deteriorated lead-based paint and elevated levels of lead-contaminated house dust” (p. 1). Of these homes, almost 20 percent are home to one or more young children (CDC, 2004).

Leaded paint that is intact, encapsulated, enclosed, or otherwise completely covered with non lead-based paint or another non-lead surface does not pose a problem as long as the paint is well maintained and surfaces are kept clean. In fact, disturbance of lead-based paint during remodeling and renovation of older homes can pose high risks for lead exposure (U.S. HUD, 1999). Lead paint that is peeling or is on deteriorating surfaces poses high risks. The paint deteriorates over time due to moisture, normal use, or disturbance during renovation projects. Paint flakes or chips can deteriorate into dust that may be so fine it cannot be seen with normal vision. Lead paint chips or flakes themselves are especially attractive because they taste sweet, like candy (Michael, 2002).

Most homes built before 1978 contain some lead-based paint. One should assume that child care facilities in buildings constructed before 1978, and especially those constructed before 1950 (when lead was more common and paint had higher lead quantities), present relatively high risks for lead exposure (Baxter, 2005).

In a study of 168 licensed child care centers, findings showed that:

- Lead-based paint is present in 28% of child care centers.
 - Fourteen percent of child care centers have one or more significant lead-based paint hazards (such as deteriorated lead-based paint, lead-based paint dust, and lead dust in soil).
 - Centers where the majority of children are African American are four times as likely (30% compared to 7%) to have significant lead-based paint hazards compared to those where a majority of children are white.
- (Tulve, et al., 2006)

The CDC analyzed data from the National Health and Nutrition Examination Survey (NHANES) from 2007 to 2010 and found that 2.6% or 535,000 children aged 1-5 years had significant blood lead levels (BLLs). Despite progress in reducing BLLs among children in this age group overall, differences between the mean BLLs of different racial/ethnic and income groups persist (CDC, 2013).

Secondary Sources of Lead

Some relevant secondary sources of lead that may add to exposure levels in the child care environment include:

- Drinking water contaminated from lead soldered pipes in the facility plumbing
 - Older and imported toys
 - Arts and crafts materials
 - Older or imported pottery
 - Pewter
 - Imported vinyl mini-blinds
 - Older outdoor playground equipment coated with lead-based paint
 - Airborne lead from nearby industries that produce lead containing materials (e.g., smelters)
 - Some traditional home remedies and cosmetics
 - Candy (because of ingredients or lead paint on the wrapping)
 - Jewelry and charms
 - Zipper pulls and/or decorations on clothing
 - By-products from certain hobbies, such as making stained-glass making or bullets
- (CDC, 2007; Schneider and Freeman, 2000; AAP, 2003)

**While all keys do not contain lead, it is difficult to determine those that do without completing a scientific test. Therefore, children should never be given real keys as something to play with.
(California Childcare Health Program, 2002)**

Routes of Lead Exposure³

The most common cause of lead *poisoning* in children is through ingestion of *lead dust* by normal hand-to-mouth activity. As they put their fingers or other objects in their mouths, children unintentionally ingest lead particles from dust, paint, water, or soil. As mentioned earlier, children may be especially attracted to lead dust because of its sweet taste. They may also inhale lead-contaminated air.

Health Effects of Lead Exposure in Young Children

Lead poisoning affects every system in the body. The risk of lead exposure is higher for children when compared to adults because their bodies are still growing and developing, and they will absorb more lead (U.S. EPA, 2004). Additionally, a child's brain and nervous system is more sensitive to the harmful effects of lead (U.S. EPA, 2004). Even at extremely low concentrations, lead can affect a child's central nervous system, kidneys, and reproductive system. According to the National Safety Council (NSC), low levels of lead are also associated with lower IQ scores, learning disabilities, behavioral problems, decreased stature and growth, and impaired hearing acuity (1995-2005). At higher levels, it can cause kidney damage, coma, convulsions, and death (NSC, 1995-2005, AAP, 2003). Damage from high lead levels is permanent and continues to affect a child's functioning throughout life.

³ Women who are pregnant and have been exposed to lead can transmit the exposure to the fetus via the placenta (NSC, 1995-2005).

Specific Children at Risk

Except at extreme levels, lead poisoning usually shows no obvious symptoms. It can only be confirmed through direct blood testing (AAP, 2003; AAP, APHA, NRC, 2011). For this reason, the AAP (1999) recommends that children who present certain risk factors be automatically screened for elevated blood lead levels. The following groups of children are recommended for testing:

- Children ages birth to two years who live in or are cared for in housing built prior to 1950
 - Children whose parents/guardians are remodeling a house that was built before 1978
 - Children whose parents/guardians are construction workers or are regularly exposed to lead
 - Children with developmental delays (i.e., physical, oral, and/or cognitive delays)
 - Victims of abuse and neglect
 - Children who are immigrants, including those who are adoptees
 - Children who have a sibling or playmate who has or did have lead poisoning
 - Children living in poverty
- (CDC 2013; AAP, 2003; Schneider and Freeman, 2000)

Children on Medicaid are required to receive a lead toxicity screening at 12 months and 24 months of age as part of the Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) program (Centers for Medicare and Medicaid Services, 2005).

Treatment of Children with High Blood Lead Levels

Chelation therapy (using medication to bind heavy metals in the blood which are then excreted in the urine) has been used for severe lead toxicity with overt neurologic sequelae. In children whose blood lead levels were often greater than 100 µg per deciliter, chelating agents rapidly lowered blood lead levels and stopped the progression of lead poisoning. This treatment saved lives, but did not eliminate the neurologic consequences which were permanent. Very rarely, if ever, does chelation therapy for such severe lead poisoning reverse or prevent the signs and symptoms of lead-induced neurotoxicity (Rosen, Mushak, 2001).

Chelation therapy is now used routinely in children who have blood lead levels of 45 µg per deciliter or more, with the goal of preventing neurologic deterioration, lead encephalopathy, and death.

A study by Rogan et al. used the most promising chelating agent, succimer, and what was considered to be a highly effective dosing regimen, to treat children who had moderate lead poisoning (20 to 44µg per deciliter). “The study suggests that even with succimer therapy, the neurocognitive effects of chronically elevated blood lead levels and total-body lead burden are irreversible.” (Rosen, Mushak, 2001).

The lack of succimer’s ability to prevent neurotoxic harm due to the children’s moderate blood lead levels and the limited efficacy of chelation therapy in cases of severe lead poisoning clearly cast doubt on the value of public health programs that rely primarily on treatment after lead poisoning has occurred. Rogan et al. emphasize the importance of the

primary prevention of lead poisoning, which is the only satisfactory solution to this devastating problem.

Detection of Lead Hazards in the Child Care Environment

Accurate detection of lead exposure risks requires the expertise of a qualified lead professional. Do-it-yourself chemical spot test kits are available at home retail centers and paint stores, but their sensitivity is limited. These current chemical spot test products are not recommended by the EPA or HUD (Rossiter, Vangel, McKnight and DeWalt, 2000). Rather, it is best to locate a qualified lead professional to determine whether a lead hazard exists

Qualified lead professionals can perform a number of services, including a *paint inspection*, a *lead evaluation* and a *lead hazard control service*.⁴ Before contacting a qualified lead professional, the CCHC should assist staff in identifying potential lead hazards. The Assessment of Potential Lead Problems: Questions for the Child Care Provider provided in Appendix A of this Training Module can be used as an example. To locate a qualified lead professional, contact your state or local health department, or contact the National Lead Information Center (NLIC) for a list of licensed professionals in your area. See the “Where To Find More Information” section of this Module for more information.

CCHCs should inform child care staff that the services of a private qualified lead professional may be expensive. This may be especially true if local health departments do not have licensed individuals who have this responsibility and can provide services without charge. Under these circumstances, a child care program may need to pay for the services of a qualified lead professional. Actually removing lead hazards correctly may be tedious and, in some cases, very costly. Once the CCHC thinks a lead hazard is present in a child care facility, regular follow-up contact should be made until the problem is solved, and the CCHC should leave the child care staff with specific documentation of where potential lead hazards may be located and instructions not to remove any lead-based paint without first consulting a qualified lead professional for an assessment and a corrective plan. Removal of lead-based paint without proper knowledge can make the lead hazard worse (Bordner, 2005).

Recommended Actions to Prevent and Manage Lead Exposure

The risk of lead exposure in the child care environment cannot be entirely eliminated, but it can be significantly reduced. It is important to remember that lead-based paint is a threat when it is. The following steps should be taken to prevent lead exposure in the child care environment:

- Assume that all housing and buildings built before 1978 have lead paint unless proven otherwise through professional lead testing.
- Make sure children do not have access to peeling or deteriorating paint (check especially for painted surfaces that children might be chewing, such as window sills).
- If lead-based paint is in good condition, leave it undisturbed. Sanding or removing the paint may create a greater dust hazard.

⁴ A paint inspection can inform the child care director about the lead content of every different type of painted surface in the facility. However, it is unable to determine whether the paint is hazardous (U.S. EPA, 2004). A lead evaluation is completed to assess a facility for lead risk, while a lead hazard control service is performed to repair a facility that has a documented lead risk.

- Children and pregnant staff should not be in buildings built before 1979 that are undergoing renovation.
 - Regularly wash children's hands and toys.
 - Regularly clean surfaces with a wet rag or mop to remove dust.
 - Provide a sandbox for outdoor play rather than allowing children to play in bare soil.
 - Use only cold tap water for drinking, cooking, or preparing formula.
 - Provide foods high in calcium and iron, as a child who gets enough of these will absorb less lead.
 - Remove all toys, dishware, and other items that have not been shown to be lead-free.
 - Be aware of recalls on toys and other items that may contain lead. To learn more about lead recalls, visit the U.S. Consumer Product Safety Commission (CPSC) website at <http://www.cpsc.gov/>.
- (EPA, 2008; CDC, 2007)

Table 1 on the following page summarizes potential lead hazards in the child care environment and the actions recommended for managing and preventing lead exposures. The recommendations are derived from the *CFOC* standards (3rd ed., 2011), CDC (2002a), AAP (1999), National Center for Healthy Housing (2001), and HUD (1995, 1999).

Table 1
Recommended Actions for Prevention/Management of Lead Exposure in the Child Care Setting

Potential Hazard	Recommended Actions⁵	By Whom
<p><u>Age of Building</u></p> <p>Pre-1978</p> <p>If paint contains lead</p> <p>If pipes contain lead</p>	<p>House paints made before 1978 may contain lead. If there is any doubt about the presence of lead in existing paint, contact the health department for information regarding testing. In all centers, both exterior and interior surfaces covered by paint with lead levels of 0.06% and above, or equal to or greater than 1.0 milligram per square centimeter and accessible to children, should be removed by a safe chemical or physical means and or made inaccessible to children, regardless of the condition of the surface. Any surface and the grounds around and under surfaces that children use at the facility, including dirt and grassy areas, should be tested for excessive lead in a location designated by the health department.</p> <p>Information on state specific regulations for lead testing can be found at state and local health departments. 5.2.9.13</p> <p>Test the children for elevated blood levels. (Please refer to the “Health Effects of Lead Exposure in Young Children” section of this module for more information on specific children at risk for lead exposure.)</p> <p>Investigate which <i>abatement</i> option is best for the facility. Investigate which interim controls can be implemented in the meantime. (Please refer to <i>Appendix B: Abatement and Interim Controls</i> for a detailed description of abatement options and examples of interim controls.)</p> <p>Drinking water, including water in drinking fountains, should be tested and evaluated in accordance with the assistance of that local health authority or state drinking water program to determine whether lead and copper levels are safe. Contact your local health department or state drinking water program for information on how to collect samples and for advice on frequency of</p>	<p>Qualified Lead Professional (QLP)</p> <p>QLP</p> <p>QLP</p> <p>Caregiver/Teacher</p>

⁵ CFOC (3rd ed., 2011) Standard [9.4.1.13](#) states “The facility should maintain and display, in one central area within the facility, current copies of inspection reports required by the state licensing office” (p. 384). This includes results of any lead tests (i.e. water, paint, etc.).

Potential Hazard	Recommended Actions⁵	By Whom
	testing. 5.2.6.3 Run the tap water for two minutes at the start of each day to flush out accumulated lead before using for cooking or drinking (AAP, 2003). Use only cold water for drinking and cooking (U.S. EPA, 2004).	
<u>Location of Child Care (i.e. near industrial site, large roadway, etc.)</u>	Check with local health authorities about the possibility of emissions containing lead. Contact the CCHC to help facilitate the involvement of a qualified lead professional.	Caregiver/Teacher
<u>General Furnishings and Equipment</u>	Equipment, materials, furnishings and play areas should be sturdy, safe and in good repair and should meet recommendations for the U.S. CPSC for control of a list of seventeen safety hazards, including lead. 5.3.1.1 The U.S. CPSC recommends that consumers with children six years of age and younger remove old vinyl mini-blinds and replace them with new mini-blinds made without added lead or with alternative window coverings. 5.2.9.13	Caregiver/Teacher
<u>Facility Cleanliness</u>	Keep the child care facility clean. Install a good doormat and keep it clean. Use damp mops/dust rags and a general all-purpose cleaner instead of dry dusting or sweeping as this may further disperse lead dust particles throughout the environment. Use a HEPA (high efficiency particulate air) filter when vacuuming, as recommended by the EPA (1997a) for lead cleaning.	Caregiver/Teacher
<u>Hand Hygiene</u>	All staff, volunteers, and children should follow the procedure in Standard 3.2.2.2 for hand hygiene. Situations or times that children and staff should perform hand hygiene should be posted in all food preparation, hand hygiene, diapering and toileting areas. 3.2.2.1	Caregiver/Teacher, Volunteers, Children and Parents/guardians?
<u>Children's Diet</u>	Provide children with a diet rich in iron and calcium, such as spinach and dairy products. These foods reduce the amount of lead absorbed from the GI tract.	Caregiver/Teacher

<u>Food Storage</u>	When possible, opt for glass, porcelain or stainless steel containers, particularly for hot food or liquids. Plastics can contain chemicals and metals which are used as additives and stabilizers. Some of these can be toxic, such as lead. 5.2.9.9 , Imported dishware may be improperly fired and may release toxic levels of lead into food. 4.5.0.2	Caregiver/Teacher
<u>Art Materials</u>	Only art and craft materials that are approved by the Art and Creative Materials Institute (ACMI) should be used in the child care facility. Materials should be labeled in accordance with the chronic hazard labeling standard, ASTM D4236. Caregiver/teachers should closely supervise all children using art and craft materials. 5.2.9.7 (Additional information on the risk of art materials can be found in NTI's <i>Injury Prevention in Child Care, Part B</i> training module.)	Caregiver/Teacher
<u>Toys/</u>	Polyvinyl chloride (PVC), also known as vinyl, is one of the most commonly used types of plastics today. PVC products, including certain toys, may have chemicals such as lead, cadmium, and phthalates, which can flake, leach or off-gas, causing the release of these chemicals into the surroundings. Consumers of products for children should look for products that state “phthalate-free” or “BPA-free” or certification by Toy Safety Certification Program or American National Standards Institute. 5.2.9.9	Caregiver/Teacher

WHERE TO FIND MORE INFORMATION

Alliance for Healthy Homes

<http://www.afhh.org/>

American Academy of Pediatrics, Committee on Environmental Health. Handbook of pediatric environmental health. 2nd ed. Elk Grove Village (IL): American Academy of Pediatrics; 2003.

California Childcare Health Program

Child Care Lead Poisoning Prevention Curriculum (English and Spanish versions)

<http://www.ucsfchildcarehealth.org/html/pandr/trainingcurrmain.htm#lpp>

Centers for Disease Control and Prevention

CDC's lead poisoning prevention program.

<http://www.cdc.gov/nceh/lead/about/program.htm>

Information Networks and Other Information Sources

<http://www.cdc.gov/nceh/lead/data/index.htm>

Listing of state and local health departments

<http://www.cdc.gov/mmwr/international/relres.html>

Lead Poisoning Prevention Branch

Division of Environmental Hazards and Health Effects

National Center for Environmental Health.

<http://www.cdc.gov/nceh/lead/>

Toys and Childhood Lead Exposure

<http://www.cdc.gov/nceh/lead/tips/toys.htm>

Head Start Bureau

Training guides for Head Start learning community: Sustaining a healthy environment. Head Start Information and Publication Center

<http://www.eric.ed.gov/PDFS/ED422061.pdf>

Lead Paint Toy Recalls

<http://www.cdc.gov/nceh/lead/recalls/toys.htm>

National Lead Information Center (NLIC)

U.S. Environmental Protection Agency

Tel: 800/424-LEAD

<http://www.epa.gov/lead/pubs/nlic.htm>

Scorecard: The Pollution Information Site

Environmental Defense

<http://www.scorecard.org/>

U.S. Consumer Product Safety Commission

Toy Hazard Recalls

<http://www.cpsc.gov/cpsc/pub/prerel/category/toy.html>

U.S. Department of Housing and Urban Development
President's Task Force on Environmental Health Risks and Safety Risks to Children.
Eliminating childhood lead poisoning: A federal strategy targeting lead paint hazards
<http://www.hud.gov/offices/lead/library/hhi/Lead.pdf>

About Lead-Based Paint
<http://www.hud.gov/offices/lead/healthyhomes/lead.cfm>

U.S. Environmental Protection Agency
Lead in Paint, Dust, and Soil
Contact information for EPA regional offices and regional lead coordinators
<http://www.epa.gov/epahome/comments.htm>

Protect your family from lead in your home informational booklet
<http://publications.usa.gov/USAPubs.php?PubID=3255>

Lead-Safe Yard handbook
<http://www.epa.gov/region01/leadsafe/tool2.html>

Locate Firms and Training Programs
<http://cfpub.epa.gov/flpp/>

U.S. National Library of Medicine
National Institutes of Health
Department of Health and Human Services.
Toxmap: Environmental health e-maps.
<http://toxmap.nlm.nih.gov/toxmap/home/welcome.do>

U.S. National Library of Medicine
National Institutes of Health
Department of Health and Human Services.
Toxtown
<http://toxtown.nlm.nih.gov/>

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Centers for Disease Control and Prevention, National Center for Environmental Health. (2004). General lead information: Questions and answers. Available at: <http://www.cdc.gov/nceh/lead/> Accessed June 6, 2013.

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GLOSSARY

Abatement: Reducing the degree or intensity of, or eliminating, pollution.

Environmental hazards: Situations or conditions in which something in the environment, such as radiation, a chemical, or other pollutant, can cause human illness or injury.

Lead (Pb): A highly toxic metal. Common sources of lead exposure are lead-based paint in older homes, contaminated soil, household dust, drinking water, lead crystal, and lead-glazed pottery.

Lead dust: Very fine particles containing lead that are usually caused by the deterioration of lead paint.

Lead evaluation: This is completed by a qualified lead professional to assess a facility for lead risk.

Lead hazard control service: This is performed by a qualified lead professional to repair a facility that has a documented lead risk.

Paint inspection: This service provides information about the lead content of every different type of painted surface in the building. It is unable to determine whether the paint is hazardous or what should be done about paint that is found to be hazardous.

Poisoning: An exposure to a toxic substance that may kill, injure or impair a person.

Qualified lead professional (QLP): This is a person who has been certified to test for and repair lead hazards. He/she can perform a paint inspection, a lead evaluation, and/or a lead hazard control service. Federal and state standards certify these professionals as qualified to ensure that the work, including clean-up, is done safely and properly (U.S. EPA, 2004).

APPENDIXES

Appendix A: Assessment of Potential Lead Problems: Questions to Ask the Child Care Provider

Appendix B: Abatement and Interim Controls

Assessment of Potential Lead Problems: Questions to Ask the Child Care Provider *

Instructions: A child care health consultant can use this form to assess potential lead problems in a child care facility. Answers from the child care provider may indicate the need to contact a qualified lead professional.

Facility: _____ **Person Interviewed:** _____

Date of Interview: _____ **Initials of Interviewer:** _____

Age of Building	
When was the facility built?	Date: _____
Has the facility been tested for lead?	YES _____ † NO _____ †
If yes, when and by whom? What were the results? If lead was found, what is being done?	Date: _____ Name: _____
If no, and the facility was built before 1978, when is a test scheduled?	Date: _____
Location of Child Care	
Is there anything nearby that would cause the possibility of lead emissions (i.e., industrial site, large roadway, etc.)?	YES _____ † NO _____ †
Furnishings	
Are vinyl mini-blinds used in the facility?	YES _____ † NO _____ †
If yes, have they been tested for lead?	YES _____ † NO _____ †
Facility Cleanliness	
How often is the facility cleaned with a damp mop/rags and all-purpose cleaner?	Daily _____ † Weekly _____ † Other _____
Is a HEPA (high efficiency particulate air) filter used in the vacuum?	YES _____ † NO _____ †
Personal Hygiene	
What is your handwashing policy?	_____
How are handwashing procedures monitored?	_____
Children's Diet	
Do you have a weekly/monthly menu documenting specific menu items, and does your program follow the CACFP guidelines?	YES _____ † NO _____ †
If yes, which iron-rich products do you serve (i.e., eggs, dried fruit, tofu, tuna, etc.)?	_____

* This assessment tool corresponds to **Table 1: Recommended Actions for Prevention/Management of Lead Exposure in the Child Care Center.**

Which calcium-rich products do you serve (i.e. milk, cheese, yogurt, collard greens, cottage cheese, cooked broccoli, etc.)?	
Food Storage	
How are food and liquids stored in the facility?	
Art Materials	
Have all art and crafts materials and toys been checked for lead content?	YES _____ ? NO _____ ?
If yes, when and by whom? What were the results? If lead was found, what is being done?	Date: _____ Name: _____
Toys/Play Equipment and Play Areas	
Are toys and play equipment checked at least monthly for safety, including checking that all painted items are lead-free?	YES _____ ? NO _____ ?
Has soil around the center ever been tested for lead?	YES _____ ? NO _____ ?
If yes, when and by whom? What were the results? If lead was found, what is being done?	Date: _____ Name: _____
Future Actions	
Is a lead control or removal program in place?	YES _____ ? NO _____ ?
If yes, who will carry it out and when will it begin?	
If no, has such a program been recommended?	
Will any future repair or renovation work involve surfaces that have lead-based paint on them?	YES _____ ? NO _____ ?
If yes, what protective actions are being planned?	

Notes:

Recommended Next Steps:

The CCHC should present the child care provider with the flyer on temporary measures to be taken when a potential lead hazard is present (see “Items for the Participant’s Packet” in the *Environmental Health in Child Care: Lead Trainer’s Toolkit*). The provider should be reminded to avoid scraping or removing paint without approval from a qualified lead professional.

Appendix B: Abatement and Interim Controls

There are several long-term abatement options that are designed to eliminate lead hazards. These include: 1) removal of paint, 2) component removal and replacement, 3) encapsulation, and 4) enclosure. These methods should last at least 20 years under normal conditions. In the meantime, interim controls can be done to temporarily reduce exposure to lead based paint hazards (U.S. HUD, 1995).

1. Removal of paint

CFOC (3rd ed., 2011) standards state that in all centers, both exterior and interior surfaces covered by paint with lead levels of 0.06% and above, or equal to or greater than 1.0 milligram per square centimeter and accessible to children, should be removed by a safe chemical or physical means or made inaccessible to children, regardless of the condition of the surface. [5.2.9.13](#)

Paint removal involves the greatest degree of disturbance and dust generation and is therefore considered the most hazardous form of lead abatement. Any removal of paint from the building and its surrounding grounds must be carried out according to health department regulations. Paint and other surface coating materials should comply with lead content provisions of the Code of Federal Regulations, Title 16, Part 1303. [5.2.9.13](#) Information on state specific regulations for lead removal can be found at state and local health departments.

Ideally, construction and renovation work should be done when the facility is not in operation and when there are no children present. If this is not possible, temporary barriers can be constructed to restrict access of children to those areas under construction. [5.2.9.15](#)

2. Component removal and replacement

If the housing component containing lead paint is relatively small and removable, such as a window or door, that component can be removed and replaced with a non-lead component. Component removal completely abates the lead and hazard and relatively little airborne lead dust is generated. This procedure should be carried out by a qualified lead professional.

3. Encapsulation

Lead paint may be encapsulated by painting over it with paints specifically made to cover lead-based paints. This procedure only covers the lead hazard, but generates the lowest levels of airborne lead dust. This procedure should be carried out by a qualified lead professional. Many encapsulants contain a bitter tasting agent to discourage children from mouthing painted surfaces.

4. Enclosure

Lead paint may be enclosed by covering it with a nonlead surface, e.g., vinyl siding. Enclosure does not remove the lead hazard, but generates very little lead dust. This procedure should be carried out by a qualified lead professional.

5. Interim Controls

Interim measures temporarily reduce exposure to lead based paint hazards (U.S. HUD, 1995). Interim controls include: specialized cleaning, correction of friction areas, temporary containment, repair and repainting areas of deteriorating paint, correction of the cause of deterioration, etc. Interim controls should be supervised by a qualified lead professional.