There is no “safe” level of lead in the human body. There is a growing body of evidence in the literature showing levels of lead between 5 and 9 mcg/dL are associated with lower IQ, behavioral problems, and learning problems. The CDC and NYSDOH currently recommend that public health action occur when lead levels are greater than 10 mcg/dL; however, both institutions are cautioning healthcare providers about the levels between 5 and 9 mcg/dL. In fact, since June 2009, all laboratory lead test reports in New York State include the statement, “Blood lead levels in the range of 5 to 9 mcg/dL have been associated with adverse health effects in children aged 6 years and younger.”

To aid healthcare providers in caring for children whose lead levels are reported to be between 5 and 9 mcg/dL, the CDC (2007) has suggested that providers:

- Understand the laboratory error range for blood lead values and choose a lab that achieves performance within +/- 2 mcg/dL.
- Obtain an environmental history on all patients.
- Provide lead prevention counseling.
- Follow blood lead testing recommendations for their area (state). **In New York State, blood testing is required for all children at ages one year AND two years.**
- Consider early referral to developmental programs for children at high risk of exposure to lead.
- Consider more frequent testing of children whose lead levels are approaching 10 mcg/dL.
- Direct patients’ families to sources of information that will help them establish a lead safe environment for their children.

Information on how to counsel families regarding lead in the environment is provided by the NYSDOH (2009) in a handout entitled “What Your Child’s Blood Lead Test Means”. According to the NYSDOH, environmental counseling should include the following factors:

- **Lead Paint/Repairs:** keep children away from lead paint; if making repairs on a home built before 1978, call the local DOH, and keep both children and pregnant women away during repairs that disturb old paint.

  *(Continued on next page)*
Counseling Families (continued)

- Cleaning: Wash child’s hands/face after play, before meals and before bed. Wash toys, stuffed toy animals, pacifiers, and baby bottles with soap and water. Mop floors often and use damp paper towels to clean window sills.

- Bringing lead home: Sign up for children’s product recall alerts (www.cpsc.gov/cpslist).

- If exposed to lead at work or during hobbies, make sure parents wash work clothes separately. Take shoes off at the door. Wash face, hands and uncovered skin before going home from such work or hobby activities.

- Lead in water: Let tap water run for one minute before using, if it hasn’t been run in the previous few hours. Use only cold tap water for cooking as cold water is less likely to contain significant amounts of lead. Boiling water does not get rid of lead).

- Use lead free dishes (no pewter, crystal, imported or cracked pottery).

- Serve foods high in calcium, iron, and Vitamin C.


Resources for Families

Maureen Butler RN, BSN

As actionable blood lead levels decline, it is a challenge to counsel families about reducing their child’s lead exposure. At levels < 10 mcg/dL, the source (s) may be very difficult to identify. Two of the journal articles reviewed on page 3 of this newsletter discuss the growing evidence that more children are lead exposed by lead contaminated soil rather than leaded paint chips. Several websites provide practical advice for families:

http://www.cdc.gov/nceh/lead/tips.htm is located on the CDC website. Information is only presented as text without graphics, and therefore may not be as useful in working with a low literacy population.

http://www.epa.gov/lead/pubs/renovaterrightbrochure.pdf The EPA has a new brochure, full of pictures and simple instructions to prevent renovation/remodeling lead exposure.

http://www.cdph.ca.gov/programs/CLPPB/Documents/CLPPB-SimpleSteps(E).pdf The California Department of Public Health: Childhood Lead Poisoning Prevention Branch, produced this informative brochure for members of the public about hand washing, cleaning and other routine measures to avoid lead poisoning.

http://www.upstate.edu/gch/services/lead_poisoning/ is the Central/Eastern New York Lead Poisoning Prevention Resource Center’s webpage that includes basic information for families and copies of recent issues of our Be Lead Free newsletter, intended for parents and a non-medical audience. The Resource Center’s program coordinator, Maureen Butler RN, is available to provide targeted educational materials for families who need translated materials or have very specific concerns about lead poisoning.
Journal Reviews

Maureen Butler RN, BSN

Regular Breakfast and Blood Lead Levels among Preschool Children. Liu J et al. Environmental Health 2011 Apr 1; 10:28. The authors collected information about breakfast eating habits and obtained blood samples from 1344 children from four pre-schools in China. A linear regression analysis revealed that eating breakfast regularly was significantly associated with lower blood lead (BPb) levels when compared with children who did not eat breakfast regularly. The authors conclude that improving parental knowledge about nutrition and blood lead levels might help to prevent lead poisoning.

The Elephant in the Playground: confronting lead-contaminated soils as an important source of lead burdens to urban populations. Filippelli GM, Laidlaw MA Perspectives in Biology and Medicine, Winter 2010; 53(1) 31-45. The persistence of childhood lead poisoning in urban regions of the United States remains high. This is an extensive review of the factors influencing lead exposure throughout the 20th century. The effort to prevent further lead poisoning has focused on the remediation of lead-based paints in homes. The authors present a case for moving the focus from lead-based paint in homes to a focus on lead-enriched soil as the prime risk. Sources of lead in the soil include degraded lead-based paint and lead deposited from tail pipes during the 60+ year period that leaded gasoline was used. The authors conclude that new paradigms for mitigation must recognize the need to predict areas with the highest lead soil loads and to develop effective means to mitigate this risk.

Lead Poisoning of a Child Associated With Use of a Cambodian Amulet—New York City, 2009. CDC. MMWR Morb Mortal Wkly Rep. 2011 Jan 28;60 (3):69-71. This report presents the case of a 1 year old Cambodian child with an elevated blood lead level to 20 mcg/dL. Initial home evaluations revealed no lead paint hazards and the family denied ethnic lead sources including jewelry or charms. Further conversations with the family revealed that the child wore “something to protect him”, an amulet from Cambodia with beads that were found to contain lead. Targeted educational efforts to inform healthcare providers in any community who provide care for populations of Southeast Asian immigrants are needed to avoid the development of similar cases.

Estimation of Leaded (Pb) Gasoline’s Continuing Material and Health Impacts on 90 US Urbanized Areas. Mielke H Laidlaw MA Gonzales CR, Environment International 2011 Jan; 37(1):248-57. The focus of this research paper is on lead (Pb) additives in gasoline and their material and health impact from Pb dust inputs into urbanized areas in the US. The authors measured the amount of lead in dust for each urbanized area and using measures outlined in the paper, calculated how much was from leaded gasoline deposits. They conclude that past use of lead additives in gasoline significantly affects the amount of lead in urban soil and that primary exposure prevention is needed to protect young children in these environments.
Central/Eastern New York Lead Poisoning Resource Center

Working to Eliminate Childhood Lead Poisoning

Childhood lead poisoning remains a public health problem. Lead is a known neurotoxin and there is no normal blood lead level.

In the 31 county region served by the Resource Center, nearly 193,000 children, aged less than 6 years, are in the highest risk group. Lead exposure can begin before birth when pregnant women are exposed to lead hazards at work or at home.

The Resource Center provides:

- Educational programs for both healthcare professionals and community groups
- Medical management consultation to healthcare providers for ongoing follow-up of lead exposed children and pregnant women. Management includes recommendations for chelation when blood lead levels are very elevated
- Informational support to the efforts of community based programs to initiate primary prevention projects
  It is essential that sources of lead exposure be identified before children are exposed.

The Central/Eastern New York Lead Poisoning Resource Center has offices in two locations:

Golisano Children’s Hospital, Upstate Medical University, Syracuse, NY
Medical Director: Howard L. Weinberger, MD
315-464-7584

Albany Medical Center, Albany , NY
Assistant Medical Director: Carrin Schottler-Thal, MD
518-262-7860