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CHILDREN'S ENVIRONMENTAL HEALTH CENTER OF THE HUDSON VALLEY
PROTECTING CHILDREN AGAINST ENVIRONMENTAL THREATS
www.ChildrensEnvironment.org

March 2017 – CHILDREN'S HEALTH ADVISORY Lead Exposure and Pregnancy

March 15, 2017: The recent water contamination crisis in Flint, Michigan has made the subject of lead ubiquitous presence in our lives. From its effects as a neurotoxin, to being a known teratogen, lead is a potent toxicant. It is vital that we remain aware and educated about how best to protect ourselves.

What is lead? Why is it so dangerous? Lead is an element found in nature. It is a metal that has a variety of uses, including construction, batteries, and bullets. However, if ingested or inhaled, lead can be poisonous to the human body, especially for children.

If ingested over time, lead has the potential to accumulate in the blood or bones. Chronic low-level lead exposure has adverse effects in both adults and children, and there has been no safe threshold level yet identified. In adults, these effects are primarily on the nervous system, and include cognitive decline, hypertension, renal dysfunction and adverse reproductive outcomes. High levels of exposure can lead to delirium, seizures, coma, or even death.

Blood lead is the most well-supported and widely available measure of lead exposure. In non-pregnant adults, blood lead levels < 5 micrograms/dL are considered normal. Levels between 5 and 10 micrograms/dL require follow-up, and levels > 10 micrograms/dL require assessment and management of environmental exposures. Levels > 40 micrograms/dL in symptomatic individuals require close consideration of chelation, a therapy by which a synthetic solution is injected into the blood stream in order to remove heavy metals from the body. In children, treatment is recommended at levels > 45 micrograms/dL or higher.

Can this affect my children? Yes. There is overwhelming evidence to suggest lead's role in childhood developmental delays. In fact, the developing nervous system in children makes them more susceptible to the neurologic effects of lead. Even low levels of exposure have been shown to lead to affect IQ, a child's ability to pay attention, and academic achievement. Once these effects are in place, they cannot be reversed.

I'm pregnant – can this affect my unborn child? Yes. Lead crosses the placenta quite readily, and is detectable in the fetal brain as early as the first trimester. Elevated maternal lead levels in pregnancy have been associated with gestational hypertension, spontaneous abortion, low birth and impaired neurodevelopment.

I'm pregnant and I'm not sure if I've been exposed to lead – what do I do now? Neither the Centers for Disease Control and Prevention (CDC) nor the American College of Obstetricians and Gynecologists (ACOG) recommend universal screening of blood lead of pregnant women in the United States. If you are pregnant, your obstetrician will evaluate your personal risk factors for lead exposure and perform blood lead level testing if even one risk factor is present.

These risk factors include the following:

Table 4-1. Risk Factors for Lead Exposure in Pregnant and Lactating Women

- ◆ **Recent immigration from or residency in areas where ambient lead contamination is high.** Women from countries where leaded gasoline is still being used (or was recently phased out) or where industrial emissions are not well controlled.
- ◆ **Living near a point source of lead,** such as lead mines, smelters, or battery recycling plants (even if the establishment is closed).
- ◆ **Working with lead or living with someone who does.** Women who work in or who have family members who work in lead-industry (take-home exposures).
- ◆ **Using lead-glazed ceramic pottery.** Women who cook, store, or serve food in lead-glazed ceramic pottery made in a traditional process and usually imported by individuals outside the normal commercial channels.
- ◆ **Eating nonfood substances (pica).** Women who eat or mouth nonfood items that may be contaminated with lead (such as soil or lead-glazed ceramic pottery).
- ◆ **Using alternative or complementary medicines, herbs, or therapies.** Women who use imported home remedies or certain traditional herbs that may be contaminated with lead.
- ◆ **Using imported cosmetics or certain food products.** Women who use imported cosmetics, such as kohl or surma, or certain imported foods or spices that may be contaminated with lead.
- ◆ **Engaging in certain high-risk hobbies or recreational activities.** Women who engage in high-risk activities or have family members who do.
- ◆ **Renovating or remodeling older homes without lead hazard controls in place.** Women who have been disturbing lead paint and/or creating lead dust or spending time in such a home environment.
- ◆ **Consumption of lead-contaminated drinking water.** Women whose homes have leaded pipes or source lines with lead.
- ◆ **Having a history of previous lead exposure or evidence of elevated body burden of lead.** Women who may have high body burdens of lead from past exposures, particularly those who are deficient in certain key nutrients (calcium, iron).
- ◆ **Living with someone identified with an elevated lead level.** Women who may have exposures in common with a child, close friend, or other relative living in same environment.

It is important to note that these risk factors are only for pregnant women; risk factors for young children are different.

References

Centers for Disease Control and Prevention. (2010). *Guidelines for the Identification and Management of Lead Exposure in Pregnant and Lactating Women*. Atlanta: U.S. Department of Health and Human Services .

Committee on Obstetric Practice. (2012). Lead Screening During Pregnancy and Lactation. Committee Opinion No. 533. *American College of Obstetrics and Gynecology*, 416-420.