

## **“Lead Poisoning: Its Neurological Effects on Children”**

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Lead damages every organ in the body but its greatest threat is to the brain. Lead poisoning is 100% preventable. It flows through the body for 30-35 days before it is stored in your bones. It is stored there for maybe 30 years before a physiological stress (even pregnancy) can cause the lead to begin to circulate again. It can't be measured in the blood until it is circulating again. Incidences of heart attacks are 3 times higher in people who have been exposed. It damages the kidneys, liver and heart. It is excreted gradually through urine/feces.

In pregnant women the body can confuse lead for calcium, therefore, it is very important for women who have been exposed to lead as a child, to make sure they get adequate calcium and avoid any subsequent lead. Two children were born with lead poisoning in Michigan; lead passed to the fetus at a very low level (5). There is no routine test for this in pregnant women. The Health Dept. recommends a maternal blood lead test in the 1<sup>st</sup> and 3<sup>rd</sup> trimesters and that obstetricians get a history/ask about lead exposure.

Once lead is in the environment, it stays until it is hauled away. Houses built before 1948 routinely had lead paint but lead-based paint was sold after that date as well. There are many potential sources of exposure besides paint: glazed pottery, imported spices, hobbies and various industrial exposures. A child in Minnesota died after playing with and then swallowing a charm that came on his shoe; it was 99% lead.

Lead causes less synapses to be formed in the brain. By two years of age there can be significant damage to the brain. Knowing a child's blood level at 24 months is the best predictor of sequelae (conditions that could arise due to a disease/lead poisoning). Factors in lead poisoning are the dose, exposure and chronicity (most likely to see significant sequelae). Medicaid requires testing kids for lead at 12 and 24 months but there is no enforcement piece in place right now. Michigan has the 6<sup>th</sup> largest risk of lead poisoning in the United States.

Treatment, including chelation therapy (injecting a chemical into the blood that bonds with the lead, forming a compound that can be excreted in urine), will not reverse damage to the neurological system but it can help other organs. There is evidence that some adults have problems with hypertension due to high lead and some studies are investigating a possible link with Alzheimer's. Lead poisoning can cause ADHD-like symptoms.

Young children who have been lead poisoned will need assistance; they may have problems with hearing, vision, attention, sitting still, eye/hand coordination and they may learn differently. Key times when they may need assistance are:

- K-1<sup>st</sup> grade – they have a hard time sitting still and attending to what is going on.
- 4<sup>th</sup> grade – expectation that child will be able to connect old and new learning.
- 7<sup>th</sup> & 8<sup>th</sup> grade – able to be inner-directed. Have to adapt to many different teachers, expectations and have greater difficulty learning.

The drop out rate for kids who have been lead-poisoned may be 3 times higher.

Steps after diagnosis:

- Apply to Early On<sup>®</sup> (under age 3) – diagnosis of lead exposure is an automatic entrance into the program.
- Insure adequate nutrition
- Link to medical services
- Sign up for Early Head Start – children older than 3
- May need to pursue a different prescription for their child's education plan – not necessarily special ed., but may need to allow child to get up and walk around periodically, etc.
- Need to pursue a collaborative approach to their care – educators, mental health, health care providers and community agencies.

There is now a piece of legislation that will make it a criminal misdemeanor for a landlord to knowingly continue renting out property that has been documented to have lead. A Wayne County prosecutor is using the above legislation to force landlords to fix their rental property, submit to an inspection after fixing, and admit to any other pieces of property that may be contaminated. It is important to know the age of the house and be smart before beginning any work. Lead paint can be covered with wallpaper or paneling or the paint can be removed and the area painted over with lead-free paint. There are also lead abatement contractors. The County Health Department has a list of these contractors. Lead is no longer found in paint and gasoline.