

Lead Poisoning in Children

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Abstract:

Lead is a heavy metal and It was used in many materials and products before the risk to children was known. Lead poisoning is the presence of too much lead in the body, and is the most common preventable pediatric health problem. It is caused by exposure to lead that is either eaten or breathed in the form of dust. Lead poisoning is a medical condition caused by increased levels of the heavy metal lead in the body. Lead interferes with a variety of body processes and is toxic to many organs and tissues including the heart, bones, intestines, kidneys and reproductive and nervous systems. The body carries the lead in the blood to soft tissues and bones, where it can be stored for many years. It interferes with the development of the nervous system and is therefore particularly toxic to children, causing potentially permanent learning and behavior disorders. Lead goes down iron or calcium absorption pathway in GIT. Children absorb lead well orally, Lead absorption is enhanced if diet is poor in iron or calcium. Lead can be inhaled. Lead poisoning can be treated with Special drugs, called chelators. Lead poisoning can be prevented by taking the simple precautions around the house and environment.

Keywords: Lead; Lead poisoning; Symptoms; Chelators; Prognosis; Prevention.

What is Lead?

Lead is a heavy metal and is one of the Earth's fundamental substances, naturally occurring in the soil and air. Lead is a hazardous substance. Lead has a long history as one of mankind's most useful metals. It was used in many materials and products before the risk to children was known. Lead continues to pose health hazards today, even though much is known about the adverse health effects it can cause.

National surveys estimate that more than 3 million children 6 years of age and younger have lead poisoning. This number represents almost one out of every six children younger than age 7. In Illinois, more than 5,000 children were found to have lead poisoning in 2008.

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Who Gets Lead Poisoning?

People of any age, race, or economic level can get lead poisoning, but children are at the greatest risk. Their small bodies absorb more

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lead than adult bodies do, and the lead affects them more because their bodies are still growing. Lead often targets the developing brain and nervous system. Children also are more likely to absorb lead dust because they place their hands and other objects in their mouths. Their proximity to the floor place children in greater contact with potentially contaminated dust and dirt.

Even unborn children can be harmed by lead. If a pregnant woman has an elevated blood lead level, the lead can pass from her blood to the blood of her unborn baby, causing damage similar to the problems associated with postnatal lead exposure. Women with elevated lead levels may deliver premature babies or babies with low birth weight. These children are more likely to have language and intellectual delays later in life.

Workers in these occupations battery manufacturing and recycling, construction work, auto repair and lead smelting, can unknowingly carry lead dust home from the workplace and expose to their families.

Uses and Sources of Lead

❖ Paint

- ❖ Petrol (tetraethyl lead)
- ❖ Household dust (via settlement of air pollution)
- ❖ Ceiling dust
- ❖ Ceramic glazes
- ❖ Pesticides (lead arsenate)
- ❖ Cigarettes
- ❖ Mines, smelters
- ❖ TV's, Computer monitors
- ❖ Aviation
- ❖ X-ray shields
- ❖ Crystal-ware (high levels in decanters)
- ❖ Explosives
- ❖ Non-stick linings of pots (in the past)
- ❖ Plastic coloring (wire, blinds)
- ❖ Pewter

Absorption of Lead

- ❖ Lead goes down iron or calcium absorption pathway in GIT.
- ❖ Children absorb lead well orally (~50%) of adults poorly (~10%). Lead absorption