



Mount Sinai Pediatric Environmental Health Specialty Unit WTC Lead Fact Sheet

This fact sheet answers frequently asked health questions (FAQs) about lead. It is part of a series of fact sheets describing potential health risks to children from exposures related to the World Trade Center.

What is lead?

Lead is a naturally occurring metal. It has been used in a wide variety of products including leaded gasoline, lead-based paint, water supply systems, folk remedies, ceramics and pottery, crystal, window blinds, bridges, cosmetics, and as a sealant for canned foods. It is also a component of many computers. Federal regulations have limited the lead content in these items because of health concerns. However, industrial use of lead in the past century has resulted in widespread environmental contamination and continued exposure to lead.

How are children exposed to lead?

Today, children are exposed to lead primarily through swallowing lead-based paint chips and dust in houses and apartments built in New York City prior to 1960 and nationwide prior to 1978. Two factors related to age place children at greatest risk of exposure to lead. First, lead dust accumulates on the ground where children spend the most time crawling, walking, and playing. Also, children frequently put their hands in their mouths, directly ingesting paint chips and/or dust.

Drinking water is another potential source of exposure to lead. Lead gets into water by dissolving out of lead pipes or lead solder. Infants given formula mixed with lead-contaminated tap water may be exposed to significant amounts of lead. Similarly, babies may be exposed to lead prior to birth if pregnant mothers drink lead-contaminated water. Letting the water run for 60 seconds can decrease the amount of lead in the drinking water and water used to cook. Lead-based paint is no longer used in the United States, although it is still used in certain other nations.



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Where was lead used at the World Trade Center?

Sources of lead at the World Trade Center site include computer and video monitors and rust-proofing paint used on steel beams. Fires at the World Trade Center released lead from these sources into the air.

Is my child at risk of exposure to lead related to the World Trade Center?

The EPA has set guidelines for lead in air. Lead levels in air are not allowed to exceed 1.5 micrograms per cubic meter, averaged over a three-month period. Data obtained prior to September 11, 2001 indicate an air lead level in the five boroughs of New York to be an average of 0.0324 micrograms per cubic meter, well below the EPA standards. Sampling conducted at the World Trade Center site resulted in an average air lead level of 0.17 micrograms per cubic meter, still well below the EPA standard of 1.5 micrograms per cubic meter. This level reflects sampling obtained from September 11, 2001 through February 5, 2002.

Surface wipe samples can determine the presence of lead dust on floors, window sills or window wells. The New York City Department of Health (NYCDOH) and the U.S. Environmental Protection Agency (EPA) have set the limit for lead at:

- 40 mcg/square foot on floor surfaces
- 250 mcg/square foot on window sills
- 400 mcg/square foot on window wells

A private consulting firm conducted surface wipe sampling for lead in a Battery Park playground and found levels of 23.45 mcg/square foot, well below the strictest guideline for lead surface samples. Surface wipe sampling done in schools located in the World Trade Center area such as P.S. 150, P.S. 234 and P.S. 89 resulted in a few, moderately elevated levels of lead. Those areas of the school



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with lead were promptly cleaned by certified contractors. Repeat test results obtained the same day or the following day were below the DOH and EPA guidelines. Most recent surface wipe samples obtained from the schools in May 2002 have consistently met the DOH and EPA guidelines.

Accordingly, we do not predict that children are at an increased risk of health problems caused by lead exposure related to the World Trade Center.

How does lead affect the health of children?

Blood lead levels greater than 10 mcg/dL and even below that level has been associated with behavioral problems and decreased intelligence in children. A recent study has shown that these effects may be seen at levels even as low as 5 mcg/dL. Children with blood lead levels above 20 mcg/dL may exhibit gastrointestinal related symptoms. This includes poor appetite, nausea, vomiting, abdominal pain and constipation. These children may have difficulty with learning and school performance, in addition to behavioral problems such as hyperactivity. Children may develop anemia and may also have problems with growth. Severe lead poisoning, with blood lead levels above 60 mcg/dL, may be associated with neurological symptoms such as changes in mental status, difficulty walking, seizures and coma.

How do we test for exposure to lead?

All children ages one and two years old are screened for lead by testing the lead level in blood samples. Blood lead levels above 10 mcg/dL are considered elevated. Your child's Pediatrician can assess if risk factors are present for lead poisoning by conducting a lead screening questionnaire. This questionnaire can identify if your child needs further testing.



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How do we treat lead poisoning?

If a child's blood lead level is found to be elevated, the most important therapeutic measure is to identify and remove the source of exposure. It is very important that lead paint removal be done safely because improper removal can create a hazard for children. Use of a professional contractor prevents improper removal of lead-based paint in the home. A diet high in iron, calcium and zinc helps promote removal of lead from the body. In addition to the environmental and dietary precautions, children with lead levels between 10 and 45mcg/dL are followed over time with serial blood tests to ensure the lead level is decreasing.

At levels above 45 mcg/dL, urgent medical intervention including the administration of chelating agents may be indicated. Chelating agents are medications that actively bind to lead, promoting its release from the body. It has not been shown to be effective at levels less than 45 mcg/dL.

How do we prevent further exposure?

If you have a concern about old peeling paint, have your home inspected for lead. Your water supply may also be tested for lead content. Letting the water run for 60 seconds can decrease the amount of lead in the drinking water and water used to cook. Keep your home clean and free of dust to reduce the amount of exposure to lead dust.

Never allow your child to put painted objects or paint chips in his/her mouth. Encourage frequent hand washing to remove lead dust and soil.

During renovation and removal of lead from your home, keep children and pregnant women out of the home, until the work is completely finished and your home has successfully passed follow up testing.



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Where can I get more information?

For more information, contact the Mount Sinai Pediatric Environmental Health Specialty Unit, Mount Sinai Medical Center, 1 Gustave L. Levy Place, Box 1512, New York, NY 10029. Phone: 1-866-265-6201 or 212-241-0938. Fax: 212-241-4309. Visit us online at http://www.mssm.edu/cpm/peds_environ.shtml.

You may also contact your local health or environmental department or regional EPA office. Or, visit the U.S. Department of Health and Human Service's Agency for Toxic Substances and Disease Registry (ATSDR) ToxFAQs for lead.

