

## CHILDHOOD LEAD POISONING



### Update on Blood Lead Levels in Children

There is NO safe blood lead level in children. Even low levels of lead in blood have been shown to affect IQ, ability to pay attention and academic achievement. **Effects of lead exposure cannot be corrected.** In 2012, CDC established a new reference value of 5 mcg/dl. The new lower value means that more children will likely be identified as having lead exposure allowing parents, doctors, public health officials, and communities to take action earlier to reduce the child’s future exposure to lead. These changes are based on new NHANES data of US children ages 1-5 years who are being tested for lead. NHANES (National Health and Nutrition Examination Survey) is a population base survey to assess the health and nutritional status of adults and children in the US and determine the prevalence of major diseases and risk factors for diseases. What CDC has NOT CHANGED the recommendation that chelation therapy be considered what a child has blood lead level greater than or equal to 45 mg/dl.

### Special Points of interest:

- “Signs of repeated lead exposure include: abdominal pain or cramps, aggressive behavior, constipation, sleep problems, headaches, irritability, loss of developmental skills in children, loss of appetite, fatigue, high blood pressure, numbness in the extremities, memory loss, anemia and kidney dysfunction.”

### What is Lead Poisoning and What are Some Sources of Lead?

Lead is a highly toxic metal that can build up in the body over a period of months or years causing severe mental and physical impairment and even death. Young children are most vulnerable. The single largest source of lead exposure continues to be lead-based paint dust found in homes built before 1978. These particles can be stirred up during home renovations or released from deteriorating or chipping paint. According to the CDC, children in more than 4 million households are currently being exposed to high lead levels. Lead is found in toys painted before 1976 and those toys that come from foreign countries. It is found in art supplies, contaminated dust and in gasoline products sold outside of the US. Other sources of lead include: bullets, curtain, weights and fishing sinker, jewelry, pottery and storage batteries. Children get lead in their bodies by putting lead contaminated objects in their mouths or by putting their fingers in their mouths after touching them. Lead pipes and sink faucets can contaminate drinking water. Breathing in dust that contains lead can also cause lead poisoning. You cannot smell or taste lead and it is not visible to the naked eye.

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### Symptoms of Lead Poisoning

Signs of repeated lead exposure include: abdominal pain or cramps, aggressive behavior, constipation, sleep problems, headaches, irritability, loss of developmental skills in children, loss of appetite, fatigue, high blood pressure, numbness in the extremities, memory loss, anemia and kidney dysfunction. Symptoms of a child’s intellectual disability include: behavior problems, low IQ, poor grades at school, problems with hearing, short and long term learning difficulties and growth delays. Symptoms of a high, toxic dose of lead poisoning include: severe abdominal pain and cramping, vomiting, muscle weakness, stumbling when walking, seizures, coma, and encephalopathy and require emergency medical care.

## *Childhood Lead Poisoning – Continued*

### **Who is at Risk for Lead Poisoning?**

Children are at the highest risk of lead poisoning, especially if they live in old houses with chipping paint. This is because children are prone to putting objects and fingers in their mouths. People in developing countries are also at a higher risk. Many countries do not have strict rules regarding lead. If you adopt a child from a developing country, their lead levels should be checked. The CDC recommends screening pregnant women with an elevated risk of lead exposure with follow-up recommended for blood lead levels of 5 mcg/dl or greater. Stopping lead exposure during pregnancy can positively impact fetal development.

### **How is Lead Poisoning Diagnosed?**

A standard blood lead test is used to diagnose lead poisoning. Lead is common in the environment. The National Institute of Environmental Health Sciences reports that no amount of lead in the blood is safe. It is known that levels as low as 5 mcg/dl can be associated with health problems in children. Additional test could include blood tests that look at the amount of iron storing cells in the blood, X-rays and possibly a bone marrow.

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### **How is Lead Poisoning Treated?**

The first step of treatment is to locate and remove the source of the lead. Home tests kits are available for purchase and self- testing from home improvement stores. Keep children away from the source. If it cannot be removed, it should be sealed. Call your local health department for information on how to remove lead. In more severe cases, i.e. children with blood lead levels greater than or equal to 45 mcg/dl. , a procedure known as chelation therapy can be used. This treatment binds to lead that has accumulated in the body and then the lead is excreted in urine. Activated charcoal can be used to bind the lead in the GI tract and encourage elimination via feces. A chemical called EDTA may also be used. Even with treatment, it can be hard to reverse the effects of chronic exposure. Adults with moderate exposure usually recover without any complications. In children, recovery can take time. Even low lead exposure can cause permanent intellectual disability.

### **How Can Lead Poisoning be Prevented?**

- Avoid or throw away painted toys and canned goods and candy (from Mexico) from foreign countries.
- Keep your home free from dust; damp mop floors and damp wipe surfaces; frequently wash a child’s hands, pacifiers, bottles and toys and make sure everyone washes their hands before eating.
- Use only cold water from the tap for drinking, cooking and making baby formula.
- Test your water for lead. If levels are high, use a filtering device or drink bottled water. Clean faucets and aerators regularly.
- Make sure any contractor doing work in your house is certified in lead control; use only lead free paint in your home.
- Take all children 1 to 2 years of age to doctor’s office for blood level screening.
- Avoid areas where lead based paint may have been used.

One of the goals of Healthy People 2020 is the elimination of childhood lead poisoning. CDC, HUD and EPA are working together to help achieve that goal with these key elements:

1. Identification and control of lead paint hazards.
2. Identification and care for children with elevated blood lead levels.
3. Surveillance of elevated blood lead levels in children to monitor progress
4. Research to further improve childhood lead poisoning prevention methods.

### **RESOURCES**

- Housing and Urban Development (HUD): 800-RID-LEAD
- National Information Center: 800-LEAD-FYI
- National Lead Information Center: 800-424-5323
- <http://www.cdc.gov/nceh/lead>

## CDC Finds Nasal Vaccine Ineffective

The CDC's Advisory Committee on Immunization Practices has voted not to use live attenuated influenza vaccine (LAIV), the only noninjection-based flu vaccine on the market, during the 2016-2017 flu season. The vote is based on preliminary data that show LAIV has virtually NO protective benefit against the influenza virus: It was effective in just 3% of study participants ages 2 through 17 years. By way of comparison, the inactivated influenza vaccine (IIV), which is administered via injection, has an estimated 63% effectiveness. CDC continues to recommend that everyone age 6 months and older receives either the IIV or the recombinant influenza vaccine by injection every year.

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## Got Kidney Stones?

Medical research at Michigan State University suggest that riding a roller coaster can painlessly dislodge small and even a few large kidney stones. Strapping yourself into a roller coaster, throwing your hands into the air and enduring G-forces as high as 2.5 for about three minutes can do the trick. Other independent studies have shown that sitting in the back of the roller coaster resulted in an average passage rate of 63.89% while front seat riders had a more modest passage rate of 16.67%. Researchers received permission from Walt Disney to conceal a kidney model in a backpack and then rode Big Thunder 20 times, varying their seat position. After analyzing the location of those 3 kidney stones at the end of each ride, findings supported evidence that a ride on a moderate intensity roller coaster could benefit some patients with small kidney stones. Then the kidney stone was larger, its initial position of the kidney stone affected the likelihood of its passing during the ride. Even those passed two out of three times. Roller coaster therapy might be good preventive treatment for people who are at high risk of developing obstructive kidney stones. They suggested that patients who have had kidney stones in the past and are thinking of becoming pregnant, consider a thrill ride or two in a bid to clear tiny stones before the deposits grow larger. Kidney stone sufferers who have had their deposits broken up by lithotripsy might also consider a roller coaster ride to finish the job.

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## NEW BD SEPARATOR TUBES

The Barricor™ Tube uses a proprietary elastomer instead of gel. The elastomer positions itself between cells and plasma during centrifugation to preserve sample integrity and assure accurate test results. The separator, which was recently granted FDA approval, elongates upon and throughout centrifugation to allow more time for cellular components to be pulled below the barrier. According to BD, when centrifugation slows, the separator returns to its original shape and becomes the permanent barrier. The shorter centrifugation time required (up to seven minutes less than for gel tubes) and the fact that it does not need blood to clot decreases the turnaround times significantly. Because the mechanical separator permits separation to continue throughout centrifugation far longer than gel separators, Barricor™ tubes can reduce contamination by 50 – 65% as compared to leading gel tubes. As a result they have the potential to reduce manual sample remediation and instrument maintenance. **Barricor™ is currently available only in heparinized tubes.**

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## ABP CONTINUING EDUCATION INFORMATION

A reminder that ABP, Inc. offers home study continuing education booklets to help you earn CE contact hours.

All About Bed Bugs	Atrial Fibrillation	Basics of HPV
Biological & Chemical Terrorism	Chronic Fatigue Syndrome	Communication Skills: Neonate-Geriatric
Hand Hygiene	HIPAA Security Rules	Intro to Tuberculosis
Basic Electrocardiography	Interpreting ECGs	MRSA Infections
Nutrition, Diet and Feeding Patients	OSHA Haz Com Standard ( <i>New!</i> )	Patient Rights
Routine Venipuncture	Seasonal Flu	Summertime Hazard
Vitamin D ( <i>New!</i> )	Workplace Violence	

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