When You Don’t Feel Sick: How Lead Poisoning Can Sneak Up on Moms and Kids

By Rogelio Perez D’Gregorio, MD, MS, MotherToBaby UR Medicine

Not many people know this, New York is the only state that requires that every pregnant woman have her risk of lead exposure assessed at the first prenatal visit. As a doctor seeing pregnant patients regularly, this is unbelievable to me! Highlighting this topic is particularly appropriate during October as this month we’ll celebrate National Lead Poisoning Prevention Week. This awareness week was created because lead exposure can have such serious consequences, for pregnant women and particularly for developing children.

What is lead?
Lead is a heavy metal found in many different places, like dust, air, soil, water, food and inside our homes. For generations, lead has been used in many products, like paint. People didn’t even realize it was there and that is could be harmful. It was also used in gasoline, and continue to be used in batteries, electronics, pipes, solder, ceramics, glass, toys and jewelry among many other things. In 1978, lead was removed from the manufacture of household paints. But even today the remodeling of homes with old lead paint that had been applied years before continues to be a common source of lead exposure, especially when the paint is peeling or chipping off of the walls.

What is lead poisoning?
Lead poisoning may result in one symptom or many vague symptoms that sometimes are overlooked by health care providers. They can sneak up on an exposed person and he/she may not even realize he/she’s sick. Symptoms of lead poisoning can include abdominal pain, constipation, diarrhea, aggressiveness, anxiousness, hyperactivity, shortened attention span, muscle pain, weakness, weight loss, learning disabilities, convulsions, and (with significant lead exposure) even death. Someone with lead poisoning might also develop anemia (low blood iron).

It can be devastating for developing babies and kids.
In pregnancy, lead can cross the placenta and reach the baby; so if a pregnant woman is lead-exposed, so is her baby. In addition, young children tend to put everything in their mouths, so their risk for possible exposure is high. Low doses of lead can do lasting damage to infants and young children, as well as babies developing in mom’s womb. Potential effects include:

- Lower IQ
- Distractibility and hyperactivity
- Hearing loss
- Anemia
- Growth and behavioral problems
- Kidney and brain damage
- Bone weakness/osteoporosis

So what can you do to reduce your and your child’s exposure to lead?

- All pregnant women should consider being tested for lead exposure. It is a simple and inexpensive test that can be included with the blood tests being done at your first prenatal visit. If your obstetric health-care provider does not suggest testing, ask your provider to order a blood lead test.
- Have your child tested for lead starting before age 1, with regular testing occurring until age 6. Children under 6 are especially at risk, and the long-term effects of lead in a child can be severe!
- Keep your house clean. Dust contaminated with lead that is accessible to young children can cause an increased blood lead level. Help young children wash their hands with soap and water frequently and discourage them from putting their fingers in their mouths. Use a wet mop to dust, clean windowsills regularly and wash toys frequently.

- Lead in soil does not break down with time; it remains there forever. Don't allow children to play in areas of bare soil.
- Don't burn painted wood, as it may contain lead.
- If you work with lead, shower and change your clothes before going home.
- Don't remove lead paint yourself; it's a job best left to the professionals.
- Run the cold water in your kitchen faucet at a high rate for at least 30 seconds before drinking it, using it for mixing infant formula or for cooking, especially if it hasn't been used in several hours.
- Don't store food or drink in lead crystal glassware or old pottery.
- Beware of herbal products that are not certified because a range of heavy metals have been found in uncertified herbal products.
- Make sure children have adequate amounts of calcium, iron and Vitamin C in their diets. If their diets are low in these minerals or vitamins, they can potentially absorb more lead if they ingest it.

As much as I am discouraged to see the lack of testing required nationwide for lead exposure, I am still filled with hope. My hope is that awareness, like this blog, will prevent one more child from being exposed to lead. Spread the word, share this info and remember, lead poisoning is entirely preventable! #kNOwLEAD this month and every month!



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When You Don’t Feel Sick: How Lead Poisoning Can Sneak Up on Moms and Kids

By Kurt Martinuzzi, MD, Asst. Professor in the Dept of Ob/Gyn at Emory University and Claire D. Coles, PhD, MotherToBaby Georgia Director

Aryan* and Shanaya had been married for two years and very much wanted to start a family. When they were not successful at getting pregnant, they were tested for fertility (all tests came back as normal) and months of expensive medical treatments were tried without success. Emotionally and financially spent, the couple sought the counsel of friends and family. A childhood friend from India recommended an over-the-counter herbal fertility supplement called **vasantha kusumakaram**. The product is described as being “100% natural” so she was certain that it must be safe. Shanaya took this daily for 5 months and hoped for a baby.

In India, the traditional approach to medical care is referred to as **ayurvedic medicine**. In this 2000-year-old tradition, naturally occurring herbs are mixed with other substances and are prescribed for a range of symptoms. Vasantha kusumakaram is reported to be a treatment for many illnesses and problems including diabetes, lung, heart and kidney diseases as well as heavy periods, impotence and tuberculosis. It is also felt by some to be an aphrodisiac!

During the months that Shanaya took the herbal treatment she did not become pregnant. Eventually, her husband suggested checking in again with her primary health care provider because she had started to suffer from abdominal pain, constipation, fatigue and loss of appetite. At that return visit, her blood pressure was surprisingly elevated and her blood count was low (anemia)….the combination of symptoms was a dead ringer for lead poisoning.

After recognizing the symptoms of lead poisoning, her doctor took a detailed history.

- Renovating a home that was built prior to 1978 can expose occupants to high lead levels from old paint, but Aryan and Shanaya's apartment had been built in 2002.
- Some occupations such as construction, plumbing, and auto refinishing cause exposure to lead, but Aryan was an engineer and Shanaya was an accountant.
- Hobbies such as pottery, target shooting and working with stained glass involve lead, but Aryan and Shanaya mostly spent their free time hiking with their dog and watching movies on Netflix.
- Her doctor knew that 1 out of 5 ayurvedic medicines purchased over the internet contain heavy metals such as lead, mercury, and arsenic suggesting that the vasantha kusumakaram might be responsible.

Lead Shouldn't Be In Your Body At All
Lead levels greater than 5 micrograms/deciliter (ugm/dl) are considered harmful. Shanaya's level was 114 ugm/dl! Unfortunately, the lead in her body had become incorporated into her bones where it would be released over the next decade.

At Shanaya's next visit she reported that she had missed a period and had a positive home pregnancy test result. She and Aryan had thought that they would never be able to have children and now they had gotten pregnant on their own!

Lead + Babies = Not Good. Now what?
Lead is not good for babies. During pregnancy, calcium is released from bones to help form the baby's bones… bringing any lead along with it. Thankfully, prior to Shanaya's surprise pregnancy, she underwent chelation treatment in order to get lead out of her bones more quickly. This is a process in which a medication is given that sticks to the lead and allows the body to excrete it. The chelation worked and her lead levels came down to 70 and then 22 ugm/dl over 6 months of treatment.

After discovering her pregnancy, a repeat lead level showed a slight climb in lead levels to 30 ugm/dl. While Shanaya and Aryan's developing baby was at an increased risk for problems such as miscarriage, brain and kidney development issues, and the potential for learning and behavior issues and decreased IQ, chelation was not an option to reduce lead levels. It is potentially harmful in pregnancy and unless lead levels climb above 45 ugm/dl, it is not recommended.

Essential Supplements Are Musts
As her OBGYN, I saw Shanaya and Aryan at 7 weeks along in their pregnancy. We were all relieved to see a healthy fetus with a normal heart rate! I made recommendations to improve chances for a healthy baby, including taking in 2,000 mg of calcium through diet and supplements to provide the calcium that the baby's bones would need. Green leafy vegetables, almonds and dairy products are excellent sources of calcium. Because of her anemia, we had her start to take iron twice a day. Vitamin D is also involved with bone development so this was the final supplement that we added. At 7 weeks into her pregnancy, her lead level was 17 ugm/dl and by the second part of pregnancy it was stable at 13 ugm/dl.

We performed an ultrasound scan at 20 weeks and their healthy daughter is developing perfectly with no signs of birth defects. While it appears that all will turn out well for this couple, they are already investigating ways to enrich their daughter's early years to make up for any possible small decrease in IQ as a result of the lead exposure.

Avoiding Lead Exposure
Lead is a metal that doesn't belong in any of us, but especially in pregnant women. Sadly, though, the only two states that require pregnant women to have lead levels checked are New York and Minnesota. Here's what you can do to

avoid lead:

- Avoid natural or herbal supplements unless your doctor tells you that they are 100% safe.
- Don't be misled by advertisements that are designed to sell products that haven't been evaluated for safety and quality.
- Doctors should consider screening all women (not just those who are pregnant) exposed to lead through work or hobbies, who are recent immigrants, live in homes built before 1978, or who have cravings to eat non-food items (pica).

For more information, visit MotherToBaby's Lead Fact Sheet, or contact a MotherToBaby expert via phone, text, live chat, or email. In addition, MotherToBaby has a whole section dedicated to lead exposure education including videos and brochures here.

The names and some of the details of this couple have been changed to protect their identity.

About the Authors

Kurt Martinuzzi, MD, is an assistant professor and specialist in Obstetrics and Gynecology at Emory University in Atlanta, Georgia. His interests include resident and medical student education, recurrent pregnancy loss, premature ovarian failure and polycystic ovary syndrome. He has been an active member of the Region 4 Pediatric Environmental Health Specialty Unit since 2015. Over his 25 plus year career he has been awarded multiple teaching awards and presented at many national and regional Ob/Gyn meetings.

Claire D. Coles, PhD, is Professor of Psychiatry and Behavioral Sciences and Pediatrics at Emory University, Director of the Maternal Substance Abuse and Child Development Laboratory, and Director of MotherToBaby Georgia. Her expertise is in the developmental and behavioral effects of prenatal exposure to drugs and alcohol and the interaction of these effects with the postnatal environment. She was among the first to describe the behavioral effects of prenatal alcohol exposure and to investigate the effects of cocaine exposure on child development. Dr. Coles established the only multidisciplinary clinic in the Southeastern United States that provides specialized services to individuals prenatally exposed to drugs and alcohol. Her team also designed interventions for those affected, including the Math Interactive Learning Experience and the GoFAR intervention.

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