Prenatal remediation strategy significantly reduces lead poisoning in children

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An initiative in St. Louis targeted the homes of pregnant women to receive inspection and remediation of lead hazards before the birth of a child. According to a study just published in the *American Journal of Obstetrics and Gynecology* this measure prevented childhood lead poisoning and reduced the overall burden of lead toxicity in children. Historically, the city had used an approach that waited until a child tested positive for lead poisoning, and then addressed home lead hazards to prevent future harm.

"Our data provide evidence that a program of prenatal home screening and lead hazard remediation is effective," reports lead author Daniel R. Berg, MD, MPH, of the Department of Internal Medicine, Family Care Health Centers, St. Louis, Missouri. "Children not only had a lower rate of poisoning, but also a lower average blood lead level. This is significant, since decreased intelligence in children is observed at blood lead levels below the government definition of lead poisoning, and no safe threshold of lead exposure in children has been found."

The Heavy Metal Project targeted the homes of pregnant women from a clinic primarily serving African-American women on Medicaid to receive prenatal home inspection and remediation of lead hazards. Home inspections were conducted by certified inspectors, and when lead was found, remediation efforts included paint stabilization, window replacement, and cleaning. Blood lead levels were obtained from 60 children. The average blood lead level among participants was 2.70 micrograms per deciliter (µg/dL) versus 3.63 µg/dL for controls. Blood

lead levels greater than 5 µg/dL were found in 13.3% of study participants and 22.5% of controls.

A recent study in Philadelphia that screened and remediated newborns' homes did not show similar results. However, 62.5% of the homes in the St. Louis study underwent remediation, while only 28.2% of the homes in Philadelphia did. The control population in St. Louis was older at the time of blood testing, and St. Louis possibly has a riskier housing environment.

The authors note that ideally, cities would be able to correct lead hazards in all available housing, but this is not financially possible. "Long term solutions will only be possible with well-designed public policies which make use of both private and public monies for building repair, demolition, creation of new affordable housing developments, and targeted home screenings such as the one in our study," says Dr. Berg.

Obstetricians should refer high-risk patients for prenatal home lead hazard screening and remediation, the authors recommend. "Philosophically, this screening is similar to screening pregnancies for potential complications, and newborns for congenital metabolic diseases. Lead poisoning, however, is more prevalent than many disorders," Dr. Berg notes. "Neonatal screening can detect a treatable disease in 1 of 800 newborns, but screening the homes of pregnant women for lead hazards can prevent lead poisoning in 1 of 27 children in the City of St. Louis."

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