



The Blue Ridge Poison Center

Tox Talks

 April 2009 | A Bulletin for Health Care Professionals Who Manage Poisoned Patients | <http://hsc.virginia.edu/brpc/>

Trends in Blood Lead Levels and Blood Lead Testing

DOES YOUR FACILITY HAVE TELE-

MEDICINE? The Blue Ridge Poison Control Center offers CME-accredited toxicology lectures through telemedicine. To request a topic, schedule a lecture for your staff, or more information contact Heather Collier: 434-924-5185 or HLC8E@virginia.edu.

THE UVA CENTER OF CLINICAL TOXICOLOGY associated with the Blue Ridge Poison Center manages over 500 patients each year on site in the University of Virginia Health System - from outpatient clinic visits to critically ill inpatients managed in our pediatric and adult intensive care units. In addition, over 2,000 requests are made each year for consultation with our Boarded Medical Toxicologists from other healthcare facilities by phone or telemedicine. Call 1-800-222-1222 24 hours a day, every day. [Cell users: 1-800-451-1428]

IN CHARLOTTESVILLE

Reminder: At University of Virginia Hospital, the first Wednesday of every month features toxicology Grand Rounds. For more information, contact Heather Collier: 434-924-5185 or HLC8E@virginia.edu

Register to receive this newsletter via email: Kristin Wenger: klw2s@virginia.edu

Note: This article refers to the following study:

Jones RL, Homa DM, Meyer PA, Brody DJ, Caldwell KL, Pirkle JL, Jean Brown MJ. *Trends in blood lead levels and blood lead testing among US children aged 1 to 5 years, 1988-2004*. Pediatrics 2009; 123(3):e376-85.

The adverse health effects of lead are well documented and no threshold for adverse effects has been specified. Because overt clinical symptoms are rare at blood lead levels (BLLs) of less than 70 µg/dL, blood lead testing is necessary to identify asymptomatic children with BLLs of 10 µg/dL or greater. The United States Department of Health and Human Services and the Centers for Disease Control and Prevention (CDC) have targeted BLLs >10 µg/dL for elimination in the United States by 2010. Childhood lead poisoning prevention programs have focused on young children aged < 6 years, because these children are especially vulnerable to the adverse health effects of lead. The nervous systems of young children are still developing and the hand-to-mouth behaviors common at these ages increase their risk for ingesting lead in their environment. Nationally, BLLs in children have been declining. Some children, however, continue to be at greater risk for exposure to lead than others. Since 1976, blood lead data from the National Health and Nutrition Examination Surveys (NHANES) have been used to characterize children's BLLs. From 1991–1994, Medicaid enrollees accounted for 60% of US children who had elevated BLLs, yet only 19% of Medicaid-enrolled children had a blood lead test before their participation in the NHANES III. The authors in this study augmented previous work by updating information on the distribution of children's BLLs, the extent of blood lead testing of children at risk for lead poison-

ing, and risk factors for higher BLLs among children 1 to 5 years of age from 2 separate NHANESs (1988–1994 and 1999–2004).

This study revealed that BLLs in US children continue to decrease. Although disparities have lessened, the mean BLLs and distribution of BLLs continue to be higher for low-income children, non-Hispanic black children, and children living in older housing stock (built before 1950). The analysis indicated that the vast majority of US children still have some low-level exposure to lead. Given that no “safe” BLL in children has been identified, primary prevention of lead poisoning will play an important role in continuing lead control efforts. Since the 1970s, the NHANES have provided valuable information on children’s BLLs and risk factors for elevated BLLs in the United States. Because these surveys are based on a nationally representative sample, estimates can be generalized only to the US population; the sample is not designed to provide estimates for smaller geographic areas or specific populations where the risk of elevated BLLs is high. It may not be appropriate to assume that local BLLs would be similar to the NHANES estimates. State and local surveillance data are needed to monitor local trends. For this reason, the CDC funds childhood lead poisoning prevention programs to include surveillance of BLLs. Data from CDC-funded surveillance programs consistently have shown that the risk for exposure to lead is not evenly distributed through the pediatric population. When health care providers are determining which children to test for lead poisoning, they should assess whether a child has any known risk factors.

The data suggest that the recommendation for targeted rather than universal blood lead testing for preschool children has not resulted in a decrease in testing among children at highest risk. Nevertheless, fewer than half of children enrolled in Medicaid had been tested for lead poisoning. Federal regulations require that all children enrolled in Medicaid must receive a blood lead screening test at ages 12 and 24 months. All children aged 36 to 72 months who have not previously been tested must also receive a blood lead test. The American Academy of Pediatrics and the CDC’s Advisory Committee for Childhood Lead Poisoning Prevention concur. No state is exempt from this testing requirement. Testing of children enrolled in Medicaid varies by the child’s usual place of health care. A recent Rhode Island study found that although the percentage of enrolled children tested was high (80% had at least 1 blood lead test), testing varied by provider site: 68% for office-based physicians, 86% for neighborhood health centers, 86% for hospital-based clinics, and 91% for staff-model health maintenance organizations.

Children can be exposed to lead from multiple sources. Because leaded house paint is a common high dose source of exposure for children living in the United States, the focus of US public health efforts should continue to be on reducing exposure to leaded house paint and the dust and soil it contaminates. However, there are other less-common sources of lead in the United States that also have high-lead content. Some CDC-funded childhood lead poisoning prevention programs have documented that lead in consumer products, imported toys, imported and traditional medicines, house wares, and “take-home” exposure for children whose parents work with lead have been identified for as many as 15% to 30% of children with elevated BLLs. The single most important step to reduce children’s BLLs is to identify and remove or control lead sources.