Lead Prevention and Healthy Housing Newsletter

THE UNIVERSITY of TENNESSEE Extension

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February is National HEART Month!

February 1: National "Wear Red" Day to raise awareness of Women's Heart Health

February 14: Valentine's Day

"Have a heart that never hardens, a temper that never tires, and a touch that never hurts."

--Charles Dickens

WELCOME!!

Following some reorganization in the Department of Health, the CLPP Program warmly welcomes its new leader, Pediatric Case Management and Follow-Up Director, **Pam Isom**. Pam assumes the reins from Rachel Heitmann, who continues to serve as the state's Injury Prevention and Infant Mortality Director. Pam brings more than 17 years of public health experience to the position, having served as a nurse, program manager, and County Director in local, regional, and Central Office positions. She expresses great enthusiasm for her new assignment, noting that Pediatric Case Management "saves lives and increases the quality of life for children every single day!"

Welcome, Pam,
and welcome, as well, to **Ronlanda Foley**, who assumes responsibility for Central Office case management, replacing Melania Mkandawire and Perline Stephens. Many thanks to Sara Guerra, who ably fulfilled case management duties during the staffing transitions.

The CLPPP Advisory Committee looks forward to its first meeting with Pam and Ronlanda on March 27, 2013, at the Upper Cumberland Regional Health Office in Cookeville.

Upcoming Lead Advisory Committee Meeting:

Thursday, March 27, 2014

Upper Cumberland Regional Health Office

Lead Biomarkers – The Classic, Still the Best

In a society where rapid technological advances are taken for granted, questions often arise as to whether or not blood remains the best possible biomarker for revealing and monitoring lead poisoning. To date, researchers have, indeed, concluded that blood yields the best results, albeit other biological specimens may offer some advantages.

Measuring the body burden of lead in bone would seem to make sense, as bones are the most common repository for lead in the body. For adults, as much as 95 percent of lead finds its way into the bones, with 70 percent of children's lead being stored there. For most adults, then, an osteo approach to lead screening would offer an accurate reflection of lead burden. For children and pregnant women, however, the levels of lead in bone fluctuate, with lead being recycled from bone to blood during periods of bone/skeletal growth. This blood resorption process skews lead measurement, as does bone demineralization, which occurs in menopausal women or those suffering from osteoporosis.

Bone screenings are accomplished via XRF x-rays, typically of the long bones, such as the tibia. The radiation dosage of the XRF is very small and not believed to be a health risk, even to children. Proponents of bone biomarkers for lead argue that it presents a more accurate depiction of chronic lead exposure than does blood testing. In short, bone measurement may be a viable option for most adults with a history of lead poisoning

(occupational-related elevations, for instance) but is less than ideal for children whose physical growth offers some challenges.

Much like bone, teeth also reflect a more long-term measurement of lead, without the resorption process that compromises bone. Baby teeth can be particularly helpful for studying lead. Because the formation of primary teeth occurs in utero, they reveal not only post-natal lead exposure but prenatal expsoure, as well. The limitation here is that baby teeth are not shed until the age of five or six, and their capacity for biomarker purposes while still in place (involving a biopsy of tooth enamel) is more problematic.

The positives of using hair as a biomarker are obvious—plenty of samples available, with "extraction" really simple. While lead is, in fact, excreted through hair, the quality of sampling varies with age, gender, and hair color.
An even more troubling aspect of hair as a biomarker is the difficulty is determining whether lead is externally-derived or a true reflection of lead levels in the body. Research has yet to adequately prove that hairwashing successfully removes external contaminants. What constitutes a good hair specimen in terms of length and location on the scalp remains questionable, as well.

A number of research studies have explored using saliva as a substitute for blood testing, and some oral swab tests are currently available on the market. Saliva, like hair, is readily available and easily obtained. Some researchers express concern, however, that saliva content and salivary flow rate vary according to the time of day and that general nutrition and hormones affect the accuracy of a given sample. The *future* of saliva as a widely-accepted lead biomarker for children does appear to be more promising than that of bone, teeth, or hair at this time.

Despite the other possibilities enumerated above, most researchers have concluded that blood still provides the most reliable lead screening results for children.

Do you know when products have been **RECALLED** because of safety concerns? To keep abreast of all the latest information, access the **Consumer Product Safety Commission** website at www.cpsc.gov, and click on the link: "Get Recall Updates via E-Mail."

BUDGET NEWS – FY2014

After two dismal federal budget years, FY2014 brings an improvement in allocations for the CDC Healthy Homes and Lead Poisoning Prevention Programs.

Funding levels in FY2012 were trompled and slashed when federal appropriations were reduced from $29 million to a mere two million dollars. Last year's funding was $2.45 millon. For 2014, appropriations will be roughly half what they were in 2011, coming in at $15 million. Presumably, all dollars will be directed to childhood lead poisoning/housing. The ABLES (Adult Blood Lead Epidemiology and Surveillance) Program, a victim of federal sequestration in 2013, will not be restored to funding status.

Have a Question?
Need Assistance?

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Source Material on Lead Biomarkers:

Barbosa, Jr, Fernando, Tanus-Santos, Jose Eduardo, and Patrick J. Parsons. A Critical Review of Biomarkers Used for Monitoring Human Exposure to Lead: Advantages, Limitations, and Future Needs. *Environmental Health Perspectives* 2005, December; 113(12): 1668-1674.

U.S. Department of Health and Human Services, National Toxicology Program. Health Effects of Low-Level Lead.