KENTUCKY INJURY PREVENTION AND RESEARCH CENTER

HAZARD ALERT

Elevated Blood Lead Levels in Workers

Kentucky Occupational Safety and Health Surveillance - February 2020

What is the hazard?

From January 2, 2017, to October 25, 2019, **793** Kentucky adults, age 16 and up, had at least one blood lead level (BLL) measurement at or above 10 micrograms per deciliter of blood (µg/dL). Since the National Institute for Occupational Safety & Health (NIOSH) began tracking BLL rates ≥10 µg/dL for adults in 2010, Kentucky has averaged rates 40% higher than the estimated national prevalence rate. There is no safe level of lead exposure. Even BLLs less than 5 µg/dL may be associated with harmful health effects.

What is lead?

Lead is a naturally occurring element found in the crust of the earth, but is now found in all parts of our environment due to human activities[1]. Lead is considered a heavy metal and is denser than most common materials. It is extracted from ores and is still heavily used in manufacturing throughout the world.

How am I exposed?

Since lead is naturally occurring and used heavily in certain manufacturing processes, exposure is a global issue. Workers can be exposed during plumbing, radiator repair, and other worker activities. Occupational exposure is particularly important for those working in construction, mining, smelting, and manufacturing[2].

Why is lead dangerous?

While it affects all organs, the nervous system and immune system are the most affected targets of lead toxicity. Children are especially vulnerable because their tissues, internal as well as external, are softer than in adults[3]. High levels of lead in children have been linked to behavioral problems and learning deficiencies. In adults, high lead exposure can lead to

- Reproductive problems in both males and females
- High blood pressure
- Blood disorders
- Central nervous system damage
- Kidney issues
- Death

Lead at Work

- **Several industries still expose their employees to lead. These industries include, but are not limited to, auto repair, battery manufacturing, firing range instruction, plumbing and pipe fitting, mining, and welders.**

Recommendations for Prevention[4]

- **Speak with your employer if you have concerns about lead exposure.**
- **Wear assigned protective equipment, such as gloves or a fitted respirator when working around lead dust or fumes.**
- **Always wash your hands and face prior to eating or drinking.**
- **Remove work clothes and boots prior to entering your home, especially if you have children.**
- **If possible, shower at work before going home.**
- **Have regular blood work done to check the BLL in your system. Speak with your doctor if you notice any changes.**

Kentucky Injury Prevention and Research Center (KIPRC) is a bona fide agent for the Kentucky Department for Public Health.

Kentucky Public Health
Prevent. Promote. Protect.

Further Resources:

Name of Resource	Resource Description	Resource Link
Blood Lead Levels in Children	Protecting children from exposure to lead is important to lifelong good health. No safe blood lead level in children has been identified. Even low levels of lead in blood have been shown to affect IQ, ability to pay attention, and academic achievement.	https://www.cdc.gov/nceh/lead/prevention/blood-lead-levels.htm
Adult Blood Lead Epidemiology and Surveillance (ABLES)	ABLES was created to reduce the rate of adults (age 16+) who have blood lead levels (BLL) equal or greater than ten micrograms per deciliter (BLLs ≥10 µg/dL) as a result of work-related lead exposure.	https://www.cdc.gov/niosh/topics/ables/description.html
Lead poisoning in children and in adults	Provides fast facts on blood lead levels including causes, symptoms, and treatment options.	https://www.osha.gov/SLTC/lead/

Let us know what you think about this alert. Click here to complete our brief, anonymous survey.

For additional training materials and information regarding the KOSHS program, please visit the program website at: http://www.mc.uky.edu/kiprc/koshs/index.html

[1] https://www.epa.gov/lead/learn-about-lead

[2] https://www.epa.gov/lead/protect-your-family-exposures-lead

[3] Wani, A. L., Ara, A., & Usmani, J. A. (2015). Lead toxicity: a review. *Interdisciplinary toxicology*, *8*(2), 55–64. doi:10.1515/intox-2015-0009

[4] https://www.coshnetwork.org/node/359

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