FUNDAMENTAL 55: Lead Awareness



Almost 95% of elevated blood lead levels among adults are work-related. Upon completion, you will recall hazards and health effects of lead exposure, ways to determine if there is lead in your workplace, and how to control lead exposure.

Key Takeaways:

- Understanding the hazards of lead in the workplace.
- Learning how lead can enter the body.
- Learning the health effects of lead overexposure.
- Recognizing where lead is found.
- Understanding OSHA’s permissible exposure limit for lead.
- Recognizing practices for limiting lead exposure.
- Learning the purpose for monitoring airborne lead exposure.
- Comprehending the requirements for using PPE such as respirators and protective clothing.
- Learning housekeeping and hygiene practices which limit lead exposure.
- Understanding the two components of the medical surveillance program.
- Acknowledging the purpose of the Medical Removal Program and its benefits.
- Realizing recordkeeping requirements.

Course Description

The Centers for Disease Control & Prevention stated that despite improvements in public health policies and substantial reductions in blood lead levels (BLLs) in adults, lead exposure remains an important health problem worldwide. Around 95% of all elevated blood lead levels reported among adults in the United States are work-related.

Just little lead poisoning causes serious health problems, and at very high levels, it can be fatal.

Lead is a soft, heavy, grayish blue metallic element native to the earth’s crust. The majority of occupational exposure to lead comes from activities like mining, smelting, manufacturing, and through the use and work with manufactured products containing lead. Although, lead is likely most commonly associated with paint as a historically important ingredient until the negative effects of lead paint became known, resulting in the banning of its use and the rise of safer

alternatives like latex. Lead was used until about the late 1970’s, so lead paint remains a common hazard for those working in the demolition, renovation, and general construction industries, though exposure to lead paint is a diminishing risk.

Lead poisoning can result in damage to the brain, liver, kidneys, and red blood cells. Also, it can damage bones and cartilage, and harm the reproductive system. When there is skin or eye contact with lead dust, irritation can occur. Entry points to the body for lead include ingestion and inhalation. Ingestion happens through eating lead contaminated foods and drinking water that has passed through older lead pipes. Also, it can be inhaled by breathing air containing lead dust or particles of lead such as fumes from heated lead.

Airborne lead has a permissible exposure limit (PEL), the amount of lead exposure the average person can safely endure, of 50 micrograms of lead per cubic meter of air averaged over an 8-hour work-day. Keeping the lead exposure level below this number protects everyone from excessive exposure. Areas where lead concentration is over the action level, employers need to supply the workforce with personal protective equipment (PPE) suitable for controlling the hazard. To easily and efficiently reduce airborne lead, replace lead and products that contain lead with less or non-toxic materials, such as using latex paint instead of lead paint.

There are several ways to handle the removal of lead, or lead containing materials. Firstly, the entire piece can be removed and replaced.

As well, lead-containing material can be covered with another material. Prior to removing material containing lead, consult with federal and state Occupational Safety & Health Administration (OSHA) and Environmental Protection Agency (EPA) regulations.

Change rooms, showers, and filtered air lunchrooms must be available for workers exposed to lead above the permissible exposure limit (PEL). Following showering, no clothing or equipment worn during the shift can be worn home, because lead toxicity poses dangerous risks for children. Lunchrooms must not be entered while wearing protective clothing or equipment unless surface dust has been removed by vacuuming, a downdraft booth, or other cleaning method. Whenever workers are exposed to lead dust, hand washing and face scrubbing prior to eating, drinking, smoking, or applying cosmetics, should be strongly encouraged or better yet, mandatory.

In areas where lead is a hazard, signs need to be posted to warn the employees of the danger of lead hazard in the area. It is critical to allow the workforce to understand and implement best practices for working with lead.

At times that exposure to lead is not controlled below the PEL by other means, employers must provide and assure the use of respirators. Workers must be trained on proper respirator use and respirators need to fit properly to protect from airborne lead. Every employer must test fits so that respirators provide adequate protection. In the case that workers have difficulty breathing during a fit test or while using a respirator, a medical examination needs to be made available to them to determine if they can safely wear a respirator.

In the case that workers are exposed to lead above the PEL, or if they are exposed to lead compounds such as lead arsenate or lead azide, they need

personal protective equipment clothing to prevent skin and eye irritation. Examples of protective clothing include full body work clothing, hats, gloves, shoes, shoe coverlets, face shields, or vented goggles.