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Practice Lab: The Integrated Lead Poisoning Prevention Assignment

Section 1: Potential Sources

Lead is a bluish-gray and white naturally occurring metal found in small amounts throughout the Earth's crust. Most lead comes from human activities and if prolonged exposure occurs over time, it can cause lead poisoning. In Happytown, there are several potential lead sources that could affect the community's health. The plastic carnival necklaces and face paint with Tiro offered to the children at Resident's Day can carry lead. Tiro is made mostly with lead and traces of it have been found in toy jewelry. Paint in the older apartment buildings from the 1940's and the chic historic downtown homes are also lead sources. Older buildings and homes constructed prior to the 1950s used lead-based paint, about 50% lead, on the inside and outside of their homes. In most cases, individuals spend more time in their homes than in any other building making it a large source of exposure. Furthermore, residents that are renovating their historic homes are exposing themselves to deteriorating lead-based paint creating additional hazards. Other potential sources include the second-hand children's toys and chapulines imported from Mexico. Children's toys often carry lead in the paint and plastic used to construct them and lead in the house dust contaminated by the deteriorating paint that settles on the toys. Lastly, a food analysis of chapulines from Oaxaca, Mexico, showed they can contain upwards 2,300 micrograms of lead per gram of product when the U.S. Food and Drug Administration (FDA) recommends children under 6 should consume less than 6 micrograms of lead per day from all food sources (LA County DPH, 2022). The lead source likely to affect the most people is the paint in most of the Happytown housing. This is because there is a significant number of low-cost apartments built in the 1940s and 50s, and many single-family homes from the 1930s that were built when 50% lead-based paint was commonly used. In closing, as stated before, people typically spend more time in their homes than anywhere else posing a hazard to most, if not all Happytown residents.

Section 2: Risks of Lead Poisoning

Certain characteristics, behaviors, activities, and environments can increase one's risk for lead poisoning. One main characteristic across all spectrums, including the mock community is young children. Young children in particular are at an increased risk, making lead exposure significantly dangerous because their developing bodies absorb more lead than developed adult bodies. The nervous system, which includes the developing brain is more sensitive to lead. Additionally, children are shorter than adults making them closer to the ground and more likely to breathe in lead-contaminated dust and soil. Another high-risk characteristic and environment for lead poisoning in Happytown are the housing units. As previously mentioned in the last section, Happytown has many apartment buildings built in the 1940s and 50s and many single-family homes built in the 1930s. Also, families that reside in the older historic downtown homes

are renovating them. Prior to the 1950s, 50% lead-based paint was used to provide pigment, durability, moisture-resistance, and fast-drying properties to the paint.
The houses pose a risk because of the lead-based paint that is peeling, chipping, chalking, cracking, damaged, or damp becomes hazardous. This major source of exposure to lead-based paint can be a major source of lead poisoning. Lastly, the cultural tradition of face painting with Tiro creates a hazard. Tiro is a traditional Nigerian eye cosmetic paint used as a folk remedy to promote visual development in young children. An investigation of infant lead poisoning in Nigeria found that tiro used around the infant's eyes contained 82.6% lead (CDC, 2011). As a result, the child experienced significant adverse effects and increased blood content levels. All of these factors are important in how a lead poisoning education program is designed because in order to create a successful intervention, one must understand the potential sources, risks, and possible exposures to the problem in their environment.

Sections 3: Risk Communication Strategies

Cultural factors are important for effectively communicating lead poisoning information because upon proper understanding it allows the public health professionals to determine the most effective type of risk communication for the audience. Happytown has a diverse community and being able to convey pertinent information in emergencies is essential. For the general public, wireless emergency alerts have been ranked the most effective in motivating protective action. These wireless alerts via an enhanced high information message provide the most detailed and complete information about the emergency and the next steps. To include English-second-language (ESL) individuals the same alert sent to the general public should also be sent out in respective foreign languages prominent in the community. As for children, an age-appropriate infographic or video with simple language and accurate information will be useful. It is also important to include strategies for the handicapped and disabled community because disabilities can significantly affect the communication process. A plethora of options such as text captioning, sign language interpretation, braille, large print, and loud speakers should be offered to convey the message to this audience. Using these techniques, in conjunction with other proper and effective risk communication strategies can be life-saving.

References:

1.Childhood Lead Poisoning Prevention Program. LA County Department of Public Health - LEAD. (n.d.). Retrieved April 14, 2022, from http://publichealth.lacounty.gov/lead/news/grasshoppers.htm#:~:text=Recent%20analysis%20of%20chapulines%20from,day%20from%20all%20food%20sources.

2. Centers for Disease Control and Prevention. (n.d.). *Infant lead poisoning associated with use of Tiro, an eye cosmetic from Nigeria - Boston, Massachusetts, 2011*. Centers for Disease Control and Prevention. Retrieved April 18, 2022, from https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6130a3.htm

3. *Covid-19: Four recommendations for Inclusive Risk Communication*. PreventionWeb. (n.d.). Retrieved April 18, 2022, from https://www.preventionweb.net/blog/covid-19-four-recommendations-inclusive-risk-communication