

Integrated Lead Poisoning Prevention Assignment

1. Sources of Lead in HappyTown

- **Toys** – At the HappyTown Annual Fun Fair, two kinds of popular second-hand children's toys are handed out including a musical instrument set and "rubber critter toys". Many of these types of low-cost toys were manufactured in China and may contain elevated levels of lead. Previously, the U.S. Consumer Safety Commission has issued recalls on bendable toys from China due to high lead levels (Becker, 2020).
- **Jewelry** – Plastic carnival necklaces, typically produced in other countries such as China, may contain hazardous chemicals like lead that could leach out of the beads (Gearhart, J. and Pena, K., 2013).
- **Face paint and cosmetics** – Tiro, a traditional eye makeup and folk remedy used to promote visual development, contains high levels of lead. The paint may be absorbed through the eyes or ingested when spread from the eyes to the mouth. (CDC, 2012).
- **Apartments and Homes** – Many of the apartments and homes in HappyTown were built between the 1930s and 1950s. In homes built before 1940, 87% contained lead-based paint (Becker, 2020). Lead-based paint was used on most home exteriors and interiors prior to 1950. Lead exposure inside the home is the most likely source to affect the most people because more time is spent inside the home than anywhere else. When lead-based paint chips or peels, it creates a dust that may be inhaled. This is particularly a hazard for children because they are most vulnerable to the effects of lead.
- **Food** – A popular restaurant in HappyTown is Buford's Restaurant, containing locally hunted meat. The name of the hunt club is called "Buckshot Buddies", which may provide a clue that buckshot is used for hunting. Buckshot commonly contains lead, which may contaminate the deer or small game being hunted. This leads to lead exposure of the population when the meat is ingested. Additionally, chapulines are imported to a specialty shop, where they may be a popular snack especially if there is a large Mexican immigrant population in HappyTown. Chapulines are deep-fried grasshoppers that have been known to include very high levels of lead.

2. Conditions Affecting Risk from Lead in HappyTown

- **Self-renovation** – The popularity of self-renovation of historic homes in HappyTown is a concern because many older homes contain lead-based paint. This is especially a concern when the paint is disturbed, such as during renovations, because the dust will be spread and likely lead to exposure.
- **Population Diversity** – There is a large population of families with young children in HappyTown. Children are more vulnerable to lead because their growing bodies absorb

more lead (Becker, 2020). They are also more likely to put their hands in their mouths after touching dust containing lead.

- **Income Disparity** – The poor are likely to live in low-cost homes or apartments that are not adequately maintained. Therefore, it is likely there is chipping or cracked paint in these residences, which provides a pathway for lead exposure.
- A lead poisoning public outreach and education program in HappyTown would have to consider the large amount of diversity in order to be effective. The health department should perform an outreach campaign to educate residents on the sources of lead in the town, including education on properly renovating a home. It would also be essential for the health department to have bilingual/multi-lingual personnel to ensure the immigrant population would be reached in these outreach activities.

3. Risk Communication in HappyTown

- **Cultural factors** are important for effective risk communication. Different social groups may have different concerns when it comes to lead exposure, and so communication efforts will need to address these various concerns.
- **Young families** – These families have young children and will therefore be more likely to take notice of effects of lead on children. Lead testing should be performed by doctors during children's checkups since there are many sources of exposure in the community. The health department and schools should educate parents and children on how to prevent lead exposure.
- **Long-time residents** – These residents are likely an older population that may live in the historic district. They may think that lead is not a risk factor for them if they have lived there for a long period of time without obvious health issues from lead exposure. Medical and health department staff should educate them on the health effects of lead and the risk of renovations to older homes due to lead paint.
- **New immigrants** – Immigrants from other countries may face several barriers such as language differences, access to healthcare, and access to adequate and safe housing. The government of HappyTown should ensure that low-cost apartments are properly maintained by landlords. The health department should educate this population on the sources of lead in the community and ensure that language barriers are overcome to ensure this communication is effectively received.

References:

Becker, S.M. (2020). Environment, society, and health [Powerpoint slides].

Centers for Disease Control and Prevention (U.S.). (2012). *Morbidity and mortality weekly report: MMWR*. Atlanta, GA: Centers for Disease Control and Prevention.

Gearhart, J. and Pena, K. (2013). The chemical hazards in Mardi Gras beads & holiday beaded garland. *The Ecology Center*. Healthystuff.org.