

MPH 613 Practice Lab: Lead Poisoning Prevention in HappyTown, USA

HappyTown Lead Sources

Tiro Face Paint: Tiro is a traditional Nigerian eye paint used on children during the annual New Residents Day celebrations in HappyTown. The CDC has warned that this cosmetic can contain a significant amount of lead and pose a risk to children when applied¹.

10 in 1 Science Kit: This kit is distributed to all school-aged children on New Residents Day. It was recalled by the U.S. Consumer Product Safety Commission (CPSC) in 2021 due to the paint on the magnets containing unsafe lead levels and posing a risk to children if ingested².

Old Housing Stock: The low-cost apartments in HappyTown were built in the 1940's and 50's, when lead paint was commonly used on the interiors and exteriors of homes. Residents may be exposing themselves and their families to lead dust from window frames or deteriorating paint. Additionally, many downtown residents are renovating their historic homes. These residents and their families may be exposed to lead dust if proper precautions are not followed.

Buford's Restaurant: Venison and small game are supplied to this popular restaurant by Buckshot Buddies Hunting Club. Lead-containing bullets have been found to leave undetectable lead fragments in hunted meat like venison³. Meat supplied by Buckshot Buddies may be contaminated with lead and exposing customers to unsafe lead levels in their food.

Arturo's Place: This restaurant carries chapulines (dried grasshoppers) imported from Oaxaca, Mexico. Studies have linked chapulines to elevated blood lead levels in children⁴. It is possible that the chapulines served at this restaurant are exposing customers to lead poisoning.

Fun Fair Toys: At the annual Fun Fair, toys are given out to all children in attendance. The three toys given away have been recalled by the CPSC in recent years due to excess levels of lead in paint and metal pieces used on the toys that pose a risk to children if ingested^{5,6,7}.

Of the lead sources described, the older housing stock has the potential to affect the most people. People spend a large percentage of time in their homes. Lead paint was widely used on homes built prior to 1950 and many residences in HappyTown predate that time period. Lead dust may come from door and window frames, peeling paint, or in the soil outside of homes. The trend of "do it yourself" renovations in the downtown area may provide additional opportunities for lead exposure. Children are at greater risk for exposure since they spend more time on the ground level where dust is prominent and are more likely to put their soiled hands in their mouths. They also absorb more lead than adults and their developing nervous system is more sensitive to lead. Due to the large population of young people in HappyTown, there are most likely many children living in these older residences, leaving them susceptible to lead poisoning risks.

HappyTown Values and Lead Poisoning Risk

New Residents Day: HappyTown values its ethnic and cultural diversity. To celebrate this, they hold an annual New Residents Day to welcome new residents, both domestic and international. To make their immigrant residents feel welcomed, they use Nigerian Tiro eye makeup in their celebrations. Unfortunately, this cosmetic may contain unsafe lead levels and sicken the children it is used on¹.

Locally Hunted Meat in Restaurants: To support and highlight the activities of the local Buckshot Buddies Hunting Club, Buford's Place serves meat from their hunts. While this helps to promote a community pastime and provides a hyperlocal and sustainable food option to customers, the meat may be contaminated from the use of lead bullets³.

"Do it Yourself" Home Renovations: Wealthy residents living downtown believe that renovating your own historic home is trendy. HappyTown sponsors a semi-annual "renovate it yourself" class that further supports this belief. This trend can promote community connection and pride, but residents may be unknowingly exposing themselves and their families to lead poisoning during renovations.

It is important to take the above values and beliefs into consideration when designing a lead poisoning education program because they can affect the level and type of risks residents are exposed to, how information is received, who residents trust, and what solutions will be most effective.

Lead Risk Communication Strategies

Cultural competence is vital to the effectiveness of any public health campaign. Recognizing, respecting, and responding to the cultural differences in HappyTown when designing lead education programs will increase the chance of the programs being accepted and followed.

Parents and Caretakers: Parents and caretakers need to be made aware of the many lead poisoning risks to children. Education through the school system will help reach a large portion of this target audience and utilizing warning labels or graphics will help ensure that these risks are understood, regardless of language barriers. Risks to children are less accepted than risks to adults, so this information should be taken seriously.

Hunting Community: Hunters need to be made aware of the health risks linked to the use of lead bullets. Finding a spokesperson within the hunting community to convey this information will be vital to successful risk communication. Hunters may feel that critique from someone outside the community is just due to their anti-hunting beliefs and not trust the information.

Wealthy Downtown Residents: Renovating your own home is trendy among these residents. Integrating information about potential lead risks in older homes during the semi-annual "renovate it yourself" class would help raise awareness. Providing specific action steps from a trusted source will give residents a clear path forward to safely participate in this trend.

Citations:

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