



Happytown Lead Poisoning Education and Prevention Program

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MPH 613: Environment, Society and Health

Graduate program in public health- Spring 2022

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April 25 ,2022

Lead is one of the most significant but preventable environmental hazards. The most effective way to ensure the population, particularly children, do not experience harmful long-term effects of lead exposure is the removal of lead hazards from the environment (National Center for Environmental Health, Division of Environmental Health Science and Practice, 2022). Happytown Lead poisoning Education and Prevention Program (HLPEPP) is designed to educate the Happytown residents about the health hazards related to lead exposure and develop primary prevention strategies to reduce the risk of lead poisoning.

Potential lead sources that could affect people's health in Happytown

Lead-based paint: The primary source of exposure to lead in Happytown could be the deteriorated lead-based paint (peeling, chipping, chalking, cracking) of low-cost apartment buildings and single-family homes built before 1978 (when lead-based paints were banned). The dust particularly resulting from old lead-based paint on surfaces frequently in motion or bumped or rubbed together (such as window frames) could be the most typical source.

Leaded soil: The soil outside those buildings might be contaminated by deteriorated lead paint. Soil, yards, or playgrounds could become contaminated when exterior lead-based paint from houses or buildings flakes or peels get into the soil

Drinking water: Those buildings and homes are more likely to have lead pipes and fixtures. As a result, lead could enter drinking water through the corrosion of plumbing materials.

Food: The lead fragments are often found in venison shot with lead bullets. The venison from Budford's restaurant could be a potential source of lead exposure. Sweet chapulines imported from Oaxaca, Mexico, may contain excessively high lead levels. The sweet chapulines of Arturo's place could affect people's health in Happytown.

New resident day products: The Tiro, the traditional eye cosmetics used in face painting, and the plastic carnival necklaces that are distributed across town could be the other two sources of lead exposure. In addition, science kits distributed to every school-age child by Happytown PTA could contain lead-based paint, particularly on the red and blue magnets.

The Happytown Annual Funfair products: The three types of secondhand toys that all young children receive during the funfair event could be another three-lead source. The metal rollers on the bottom of the flying dinosaur figures on the action fishing hero set could contain lead levels exceeding the ban lead level. Paint on the maracas, xylophone, and carrying case of the 18-piece musical instrument set could contain excess lead levels. Finally, the orange and yellow surface paint on the rubber critter toys contained levels of lead that could exceed the ban lead level.

The deteriorated lead-based paint of low-cost apartment buildings and single-family homes will likely affect most people. Happytown has plenty of low-cost apartments from the 1940s or 1950s. There is a 69% chance of lead-based paint on those buildings. The expensive single-family homes downtown in the 1930s has an 87% chance of the presence of lead-based paint. Typically, people spend more time in their homes, and a significant number of people in Happytown live in homes that increase their risk of lead poisoning.

Condition/ characteristic/ practices/ activities affect people's risk of lead poisoning

Working with deteriorated lead-based paint like repair, renovation, removing old interior and exterior painting, repainting, and replacing window frames of the houses built before 1978 could affect people's risk of lead poisoning. Projects of renovating old homes could easily create dangerous lead dust. The historic homes of downtown Happytown were mostly built before 1930, and the chances of the presence of lead-based paint in those homes were about 87%. Lead safe contractors should renovate those houses, or lead-safe work practices should be followed. The practice of renovation of those homes by homeowners without formal training could increase the risk of lead poisoning. Semiannual 'renovate it yourself' classes most likely did not include the lead-safe work practice guidelines.

Lead is discharged into the air when ammunition containing lead inside the bullets or in primer is fired. Lead fumes are also formed when the lead bullet spirals through the barrel. These fumes can get into the body during breathing or swallowing. Lead fumes and lead dust do not have an odor, so people may not notice that they are being exposed. The Happytown buckshot buddies hunting club could be another practice that increases the risk of lead poisoning. Small games of Buford's restaurant could harvest with lead shots and lead bullets.

People living in low-income households, particularly children, have a greater risk of lead poisoning than higher-income families. Happytown is a historic community where 50% of the residents have an annual income below the typical US median household income (\$67521 in 2020) which could increase people's risk of lead poisoning.

Happytown is a richly diverse community having 24.6% residents from the Hispanic community.

Therefore, cultural practices followed by the Hispanic community of Happytown, like consuming 'sweet chapulines' and using 'Tiro' in the eyes of the children, could increase the risk of lead poisoning. In addition, there are other traditional practices related to the Hispanic community that could be risk factors for lead poisoning like Mexican candies, traditional Hispanic medicines like Greta and azarcon, or using traditional Mexican ceramics containing lead.

HLPEPP should be designed to recognize, understand, respect, and respond to the cultural beliefs, values, and practices of Happytown communities. The historic homes elicit nostalgia, communal unity, and civic pride, and they promote and defend Happytown's identity. The hunting club reflects Happytown's old culture. The design, implementation, and communication of HLPEPP should have the ability to understand the cultural sensitivity and adapt to the cultural diversity of Happytown. The HLPEPP must be culturally competent to the Hispanic community.

Effectively communicating lead poisoning information in Happytown.

Happytown is a multicultural, multilingual community where cultural factors play a significant role in communicating lead poisoning information effectively. Successful communication is composed of two significant components—credibility and trust. Cultural factors influence the credibility of the information, and cultural similarity influences trustworthiness. Cross-cultural communication includes strategies that acknowledge individual cultural traditions, avoid generalizing a patient's beliefs or values based on cultural norms, and consider everyone's beliefs, values, and practices. Understanding the cultural significance of specific food or cultural need associated with specific practices is essential in effective communication. More language-specific communication material is the key to the successful communication.

Three specific risk communication strategies for three different audiences and sectors

Targeted Audience: Parents or caregivers of young children

Strategy: Provide information about the risk of lead poisoning through printed educational materials like booklets, pamphlets, and infographics to Happytown community-based organizations, schools, early childhood centers, daycare centers, and pediatric healthcare provider offices. The strategy is to provide education material with exact children-oriented personalized risk information, which can help perceive the risk related to lead, perceived personal relevance of the information, the perceived necessity of changing the environmental lead hazards, and trust in the reliability of the information. This information must be provided in appropriate cultural formats.

Targeted Audience: Property Owners of historic homes

Strategy: Arrange lead poisoning prevention training during 'renovating it yourself' classes or other community programs, delivering lead prevention presentations with details about the lead paint-related risk and the importance of lead-safe home repair practices for the renovation of historic homes. The strategy makes the presentation clear and simple, understandable by Happytown property owners, and matches their literacy level. Educators need to plan ahead and make sure the presentation also matches the interest and focus of the audience and includes the most pertinent information about lead poisoning. In addition, the presentation must be provided in multiple languages and free from cultural barriers.

Targeted Audience: Community leaders and stakeholders

Strategy: Establish a community advisory committee and spread lead-related safety information using multiple methods of communication—media, social media, the internet, and community meetings. The strategy engages community leaders and stakeholders to build trust and credibility and involves the media in the communication process. Stakeholder risk perception would play an essential role in supporting policies and protection measures in Happytown.

Happytown Lead poisoning Education and Prevention Program will successfully improve Happytown residents' knowledge in understanding the sources of lead and adopting measures to reduce the risk of lead poisoning.