Lead Poisoning in Hispanic Children: The Great Need for Prevention Education

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Abstract / Resumen

Hispanic children represent 65% of the cases of lead poisoned children in San Bernardino County. This article discusses the local statistics regarding lead poisoning in San Bernardino County and cultural factors associated with the risk of lead poisoning among Hispanic children.

Los niños Hispanos representan 65% de los casos con envenenamiento por plomo, en el condado de San Bernardino. Este articulo discute las estadisticas locales de los casos de envenenamiento por plomo en el condado de San Bernardino y los factores culturales asociados con el riesgo de envenenamiento por plomo entre los niños hispanos.

Keywords: lead, Mexican candy, child health, health promotion

The Problem

Lead poisoning can affect nearly every system in the body. Because lead poisoning often occurs with no obvious symptoms, it frequently goes unrecognized. Lead poisoning can cause learning disabilities, behavioral problems, developmental delays, anemia and, at very high levels, kidney damage, seizures, coma, and even death. Children ages 1-6 are at an increased risk of becoming lead poisoned due to their high absorption rate of lead ingested, and their hand to mouth behaviors (CDC, 2003).

According to data from the California Childhood Lead Poisoning Prevention Branch, San Bernardino County is one of the California counties that has the largest number of children with an elevated blood lead level. The San Bernardino County CLPP Program's Lead Database has accounted for over 2500 cases of children under the age of six years with blood lead levels ≥10µg/dl (10µg/dl is the level a child is considered to be "lead poisoned") since the programs inception in 1992. Out of the 2500 total cases, 65% were Hispanic children (see Figure 1) (San Bernardino County DPH-CLPPP, 2003). This percentage accounts for 1,784 lead poisoned Hispanic children in San Bernardino County alone. Out of the 2500 total cases, 404 cases had a blood lead level high enough to trigger a home environmental investigation (see Figure 2) (San Bernardino County DPH-CLPPP, 2003). When a child is identified with lead poisoning, personnel from the San Bernardino County Childhood Lead Poisoning Prevention Program will conduct a home investigation to identify and remove lead sources from the environment, or to initiate clean up measures. In many cases there are more than one contributing source of lead.

The most frequently identified source for ALL children becoming lead poisoned is lead-based paint from homes built before 1978. One out of every five homes in San Bernardino County was built before 1978 (California DHS-CLPPB, 1998). If these homes are kept in good condition, free of chipping and peeling paint, they can be considered safe residences. The problem exists when the paint begins to chip and peel, unsafe renovations are made, and ordinary wear and tear on the paint is not handled properly. Aside from lead-based paint there are many other sources accessible to young children that contain lead. Some of the more common sources are related to Mexican culture.

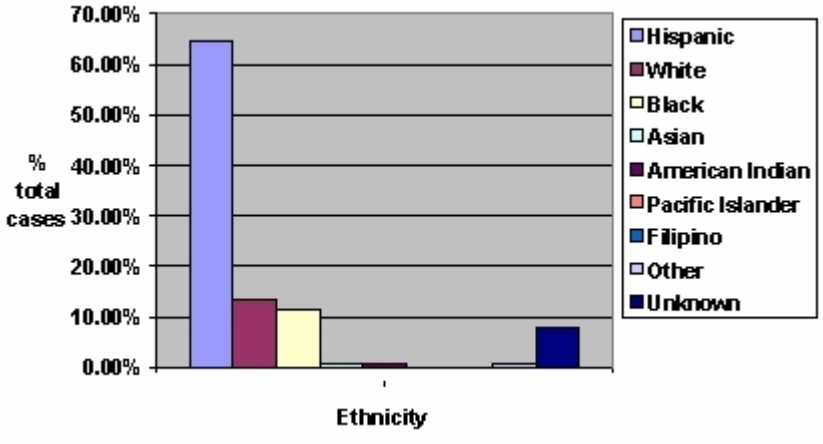

Figure 1
Lead poisoning by ethnic origin in San Bernardino County, California, 1992-2002

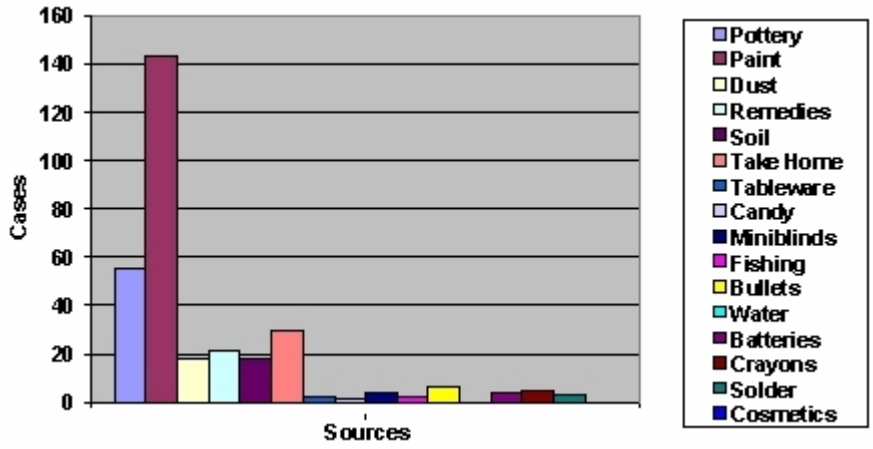

Figure 2
Lead poisoning by source in San Bernardino County, California, 1992-2002

Cultural Sources of Lead

Cultural sources can also play a role in lead exposure to children. Three common sources of lead are Mexican clay pottery used to cook and serve foods, home remedies, and Mexican candies.

In San Bernardino County (varies from county to county), imported clay pottery is the second most common source of lead exposure for children (San Bernardino County DPH-CLPPP, 2003). Clay pottery is used on a regular basis among many Hispanic families who have yet to hear of the dangers associated with its use. The most common lead containing pottery item used by Hispanic families is "the bean pot"(see Figure 3) (San Bernardino County DPH-CLPPP, 2003). There are other lead containing pottery items such as water jugs, platters, cups, bowls, etc. (see Figure 3). While it is important to note that not ALL of these items contain lead, the vast majority of them do. The lead can be found

in the paint used to decorate the pottery, but is mainly found in the glaze finishing used on the inside and outside of the pottery (Azcona-Cruz et al., 2000). When these items are used in conjunction with food or drink, the lead dissolves out of the item and into the food or drink. For example, when a "bean pot" contains lead and is used to cook beans for the family, the increased temperature associated with boiling the beans allows a greater release of lead into the beans themselves. The beans are then served to the family, including young children, and the lead is introduced into the body.

Another cultural source almost exclusively seen in the Hispanic population is the use of very specific home remedies to cure illnesses such as *Azarcon* and *Greta*. These home remedies come from Mexico and are most commonly used for what is called *empacho* or gastrointenstinal problems. Azarcon and Greta come in a powder form that is usually bright orange or yellow (see Figure 4). When a home remedy has been attributed to a lead poisoning case, an attempt to retrieve the remaining substance for analysis is made by the San Bernardino County. Careful analysis in such cases has yielded results of concentrations from 70% - 90% of lead oxides (Sankury et al., 1983). Although home remedies are not a common source of lead poisoning compared to lead-based paint and pottery, they are one of the most hazardous.

Figure 3
Mexican pottery that may contain lead glazes that promotes ingestion of lead from cooking or serving foods with the pottery.

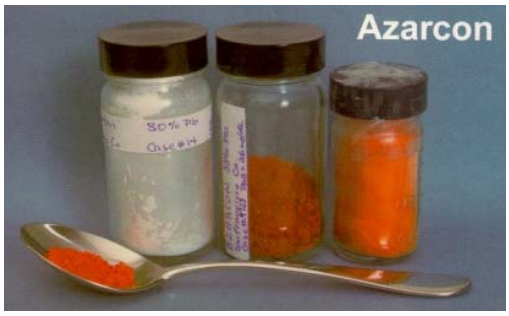

Figure 4
Azarcon is commonly used as a home remedy in Mexican culture.

Certain candies produced in Mexico have been shown to have high levels of lead both in the wrappers and also in the candy itself (Courtney et al., 2002). It is important to note that not all candies that come from Mexico contain lead. The specific candies testing positive for lead are the tamarind flavor lollipops and rolls, and the coconut flavor rolls (see Figure 5). Of approximately 1,000 cases of elevated blood lead levels among California children that were reported to California Department of Health Services during May 2001--January 2002, candy produced in Mexico was identified as a possible exposure source in approximately 150 cases (Courtney et al., 2002).

Figure 5
Mexican candies that contain lead.

Case Study

A 4-year-old Hispanic child was tested for lead at a local medical clinic in San Bernardino County. The test came back with a positive lead level of 26 µg/dl (>10µg/dl is considered lead poisoned). This blood lead level warranted a home investigation to determine the lead source(s). The sources of lead poisoning identified for this child were lead-based paint and imported Mexican pottery in the family apartment. The family lived in an apartment complex built in the 1920's. The mother reported cooking out of her "bean pot" at least twice a week. The pot was tested for lead and found to contain high levels. There was another sibling in the same home who was 3 years old. The mother was instructed to have the sibling tested for lead as well. When the results came back, the 3-year-old had a blood lead level of 48 µg/dl. According to the mother, this 3-year-old had been seen picking the paint off the walls in their apartment, and had severe speech delays. The CLPP staff connected this family with resources in the community such as Head Start, WIC, and resources for speech therapy. The family was also educated on lead hazards and were instructed to discontinue their use of any type of imported pottery. The Environmental Health Specialist from the CLPP Program worked with the landlord to correct all the lead hazards using lead-safe work practices. Lead-safe work practices include the following but not limited to: break large projects into several small projects, wear a properly fitted respirator, wear protective clothing, change your clothes and shoes before leaving the work area and do not eat, smoke or drink in the work area (EPAb, 1997). The family was relocated while the lead-safe renovation took place, and later on moved back into the apartment.

Call to Action

The CLPP staff are constantly in the community educating families about the effects of lead poisoning, and common sources of contamination (see Figures 6-8). Families are reached with direct education through presentations at their child's school, daycare,

preschool, church, and worksite. The CLPP staff also educate families through extensive community outreach, such as setting up displays at health fairs, school events, local market nights, swap meets, and community gatherings. There are still families who continue to use lead-containing items unaware of the dangers to their health, especially to children. Lead poisoning is preventable.

Figure 6
Lead Poisoning Prevention class with Hispanic parents who have children 6 years of age and younger.

Figure 7
Many visuals are used so parents can recognize the hazardous items that contain lead.

Figure 8
Interaction with participants is extremely important to promote learning.

Many families still need to be reached regarding the dangers of using imported pottery for consumption purposes, home remedies such as Azarcon and Greta, and candies produced in Mexico. It is especially important to note that Hispanic families have a greater likelihood of having these products. Lead poisoned children rarely show any signs or symptoms and therefore families assume they are lead-free and do not need to be tested. There are many children who have lead poisoning who we do not know about because they have not been identified through testing. Aside from prevention education, local CLPP programs provide many free services to families with lead poisoned children. These services can only be initiated when a lead poisoned child has been identified. Health care professionals need to encourage parents to get their children tested for lead poisoning at 1 and 2 years of age, and all the way up to 6 years old if they have never been tested before. As long as lead poisoning continues to afflict California children, we still have work to do.

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Acknowledgements

For more information, visit the California Childhood Lead Poisoning Prevention Branch website http://www.dhs.ca.gov/childlead/

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