Nassau County Department of Health

Childhood Lead Poisoning Prevention Program

Case Analysis of Pregnant Women with Elevated Blood Lead Level: 2007-2013

Lead exposure during pregnancy and breastfeeding can result in lasting adverse health effects independent of lead exposure during other life stages.[1] There have been many studies looking at how maternal lead exposure during pregnancy can cause fetal lead exposure and can adversely affect both maternal and child health across a wide range of maternal exposure levels.[2] Research suggests that prenatal lead exposure impairs children's neurodevelopment, placing them at increased risk for developmental delay, reduced IQ, and behavioral problems[3]. Despite improvements in environmental policies and significant reductions in U.S. average blood lead levels, lead exposure remains a concern for pregnant women.

The Nassau County Department of Health Childhood Lead Poisoning Prevention Program (CLPPP) has seen a decrease in the number of pregnant women with elevated blood lead levels (Graph 1). Yet, the CDC has identified that risk factors for lead exposure in pregnant women differ from those described in young children. Lead-based paint is less likely to be an important exposure source for pregnant women than it is for children; but non-traditional factors like recent immigration, pica practices, occupational exposure, nutritional practices, and culturally specific practices are more significant for lead exposure of pregnant women.[4] In an effort to understand how this difference may affect Nassau County, a longitudinal study was conducted to investigate the lead exposure in pregnant women with elevated blood lead levels (≥10 μg/dL) in Nassau County, New York, from 2007 – through 2013.

In Nassau County between 2007 and 2013, 22 pregnant women were newly identified with blood lead levels at or above 10 μg/dL (see Table 1). The sources of exposure were diverse as well as the ethnicities of the women. More than half of these women were exposed to lead via sources other than the traditional sources of lead poisoning such as leaded paint and dust (see Graph 2a and 2b). Asian Indians and Hispanics/Latinos comprised more than 70 percent of the pregnant women with lead poisoning (see Graph 3).

The non-traditional exposure risks for the women were identified to include foreign cosmetics (kohl, kajal and surma), imported medicine (ayurvedic medicine and imported vitamins), and foreign household items (molcajete and imported pottery) (see Table 4 and Graph 4). Some of these products

[1] Guidelines for the Identification and Management of Pregnant Women with Elevated Lead Levels in New York City. The New York City Department of Health and Mental Hygiene Lead Poisoning Prevention Program and The Mount Sinai Center for Children's Health and Environment. 2004.
[2] Guidelines for the Identification and Management of Lead Exposure in Pregnant and Lactating Women. Centers for Disease Control and Prevention. 2008.
[3] Childhood Lead Poisoning. World Health Organization. 2010.
[4] Guidelines for the Identification and Management of Lead Exposure in Pregnant and Lactating Women. Centers for Disease Control and Prevention. 2008.

are found to contain as much as 80% lead and can enter the body via hand-to-mouth contact and/or absorption through the eyes. While these products are banned for sale in the U.S., many of them still make their way into ethnic retail stores and homes. In addition to the use of these items, the majority of the women and families were found to be recent immigrants from other countries such as India, Pakistan, Bangladesh, and the Central America or have family connections with those countries (Graph 2b).

By recognizing the changes in the pattern of the pregnant women's lead exposure, it is possible to reduce or eliminate dangerous lead sources prior to exposure. New York State Law **requires** all pregnant women to be assessed (see attached screening tool) for lead exposure at the initial prenatal visit and blood testing those that are at risk. The law also requires, regardless of the results of the risk assessment, that medical professionals provide lead poisoning prevention anticipatory guidance. Based on the research findings, the Nassau County Department of Health Childhood Lead Poisoning Prevention Program urges all obstetricians and gynecologists in Nassau County to be vigilant when screening pregnant women with Asian Indian and Hispanic/Latino origins as they are more likely to be exposed to non-traditional, culturally specific risk factors of lead poisoning.

Graph 1

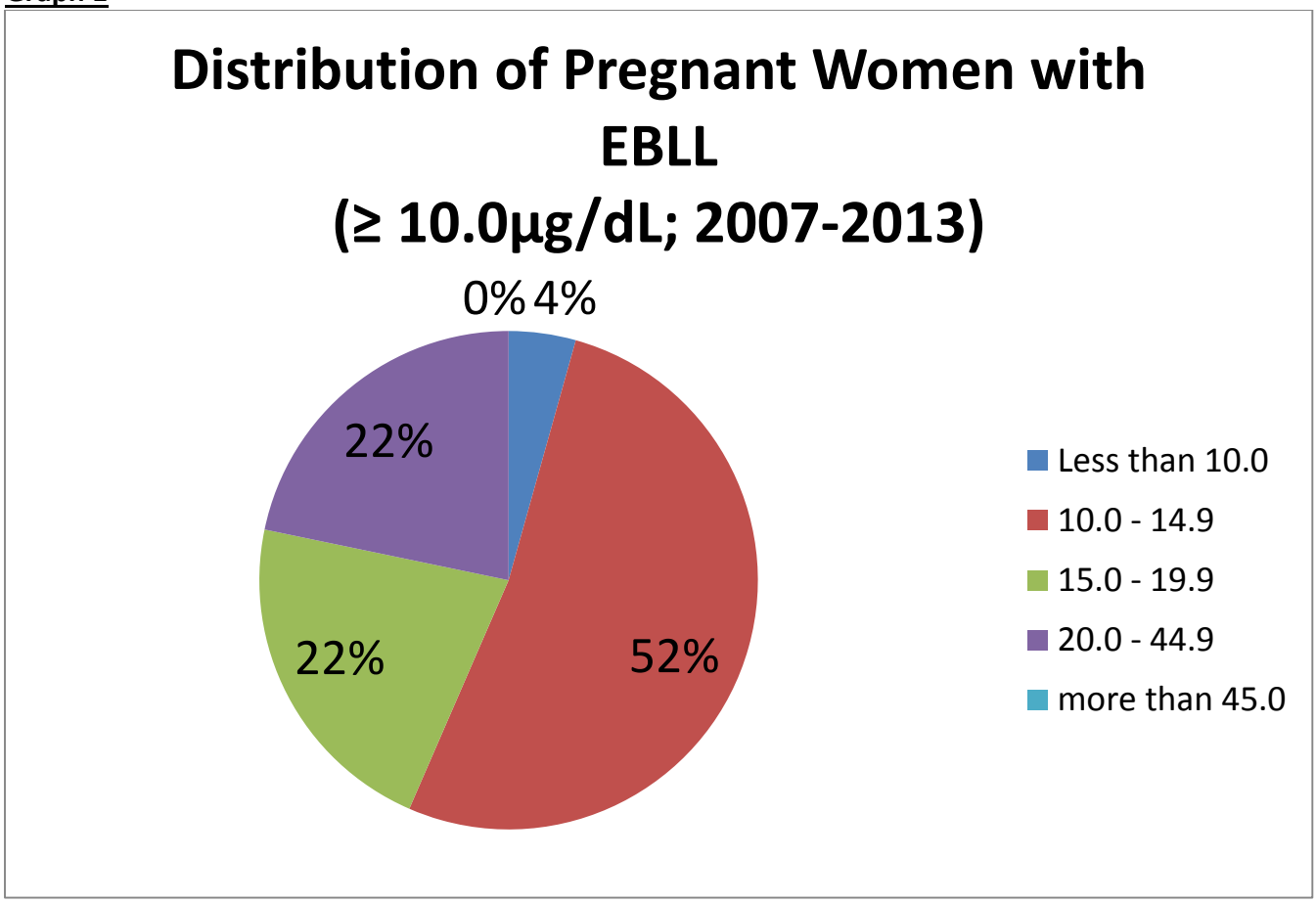
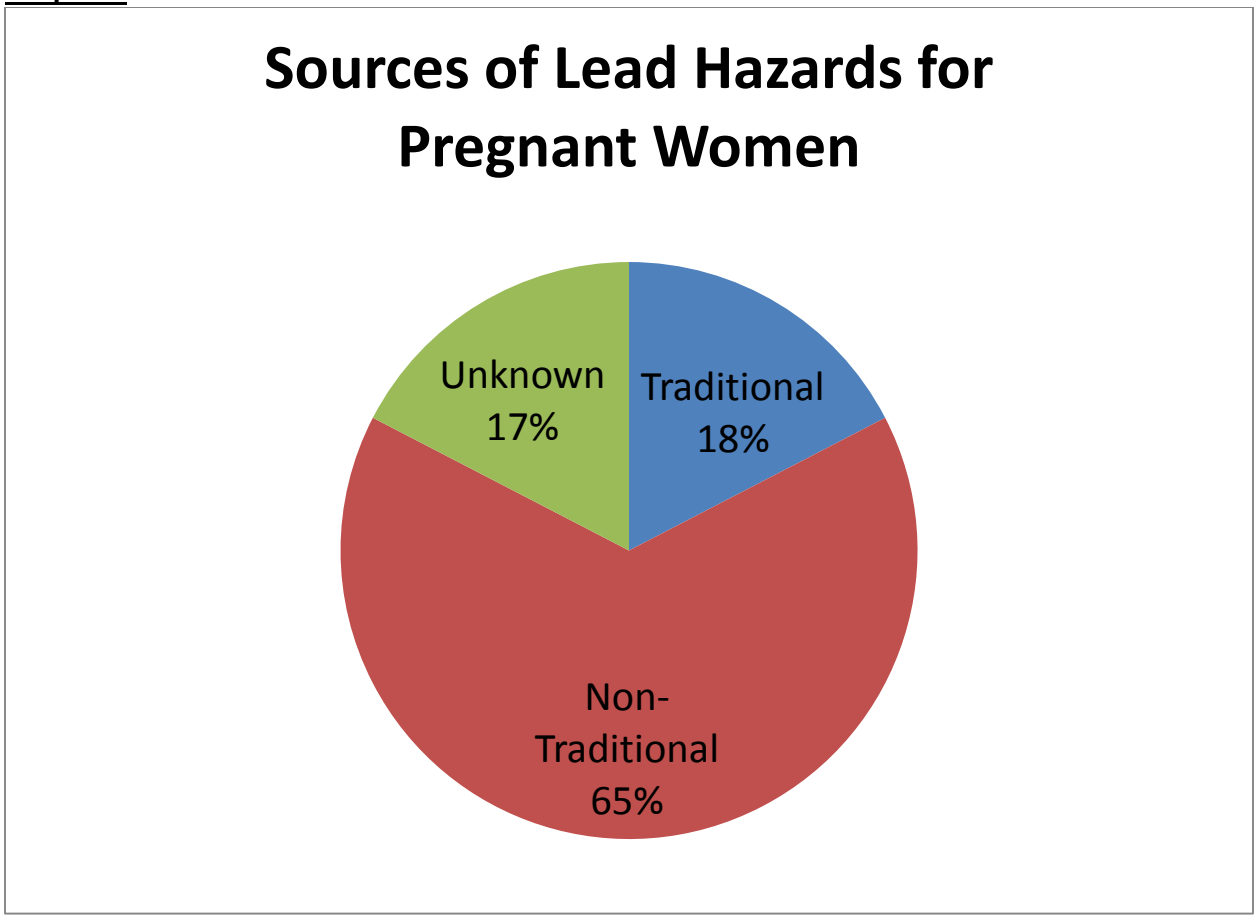


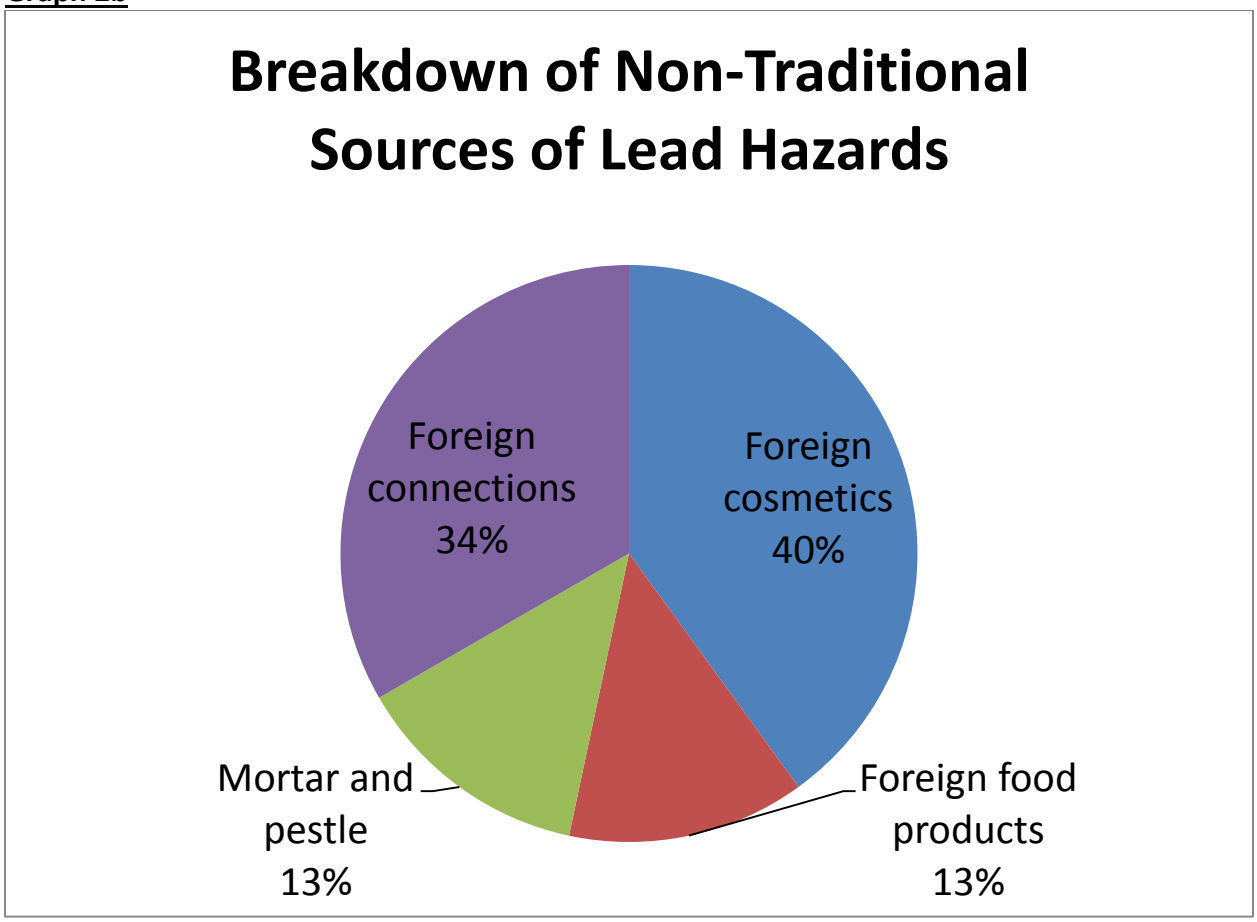
Table 1: Number of Elevated Blood Lead Level (n=23)

Elevated Blood Lead Level	Count	Percentile
Less than 10.0	1	4.35%
10.0 - 14.9	12	52.17%
15.0 - 19.9	5	21.74%
20.0 - 44.9	5	21.74%
more than 45.0	0	0.00%
Total	23	100.00%

Graph 2a


Sources of Lead Hazards for Pregnant Women
Unknown 17%
Traditional 18%
Non-Traditional 65%

Graph 2b


Breakdown of Non-Traditional Sources of Lead Hazards
Foreign connections 34%
Foreign cosmetics 40%
Mortar and pestle 13%
Foreign food products 13%

Graph 3

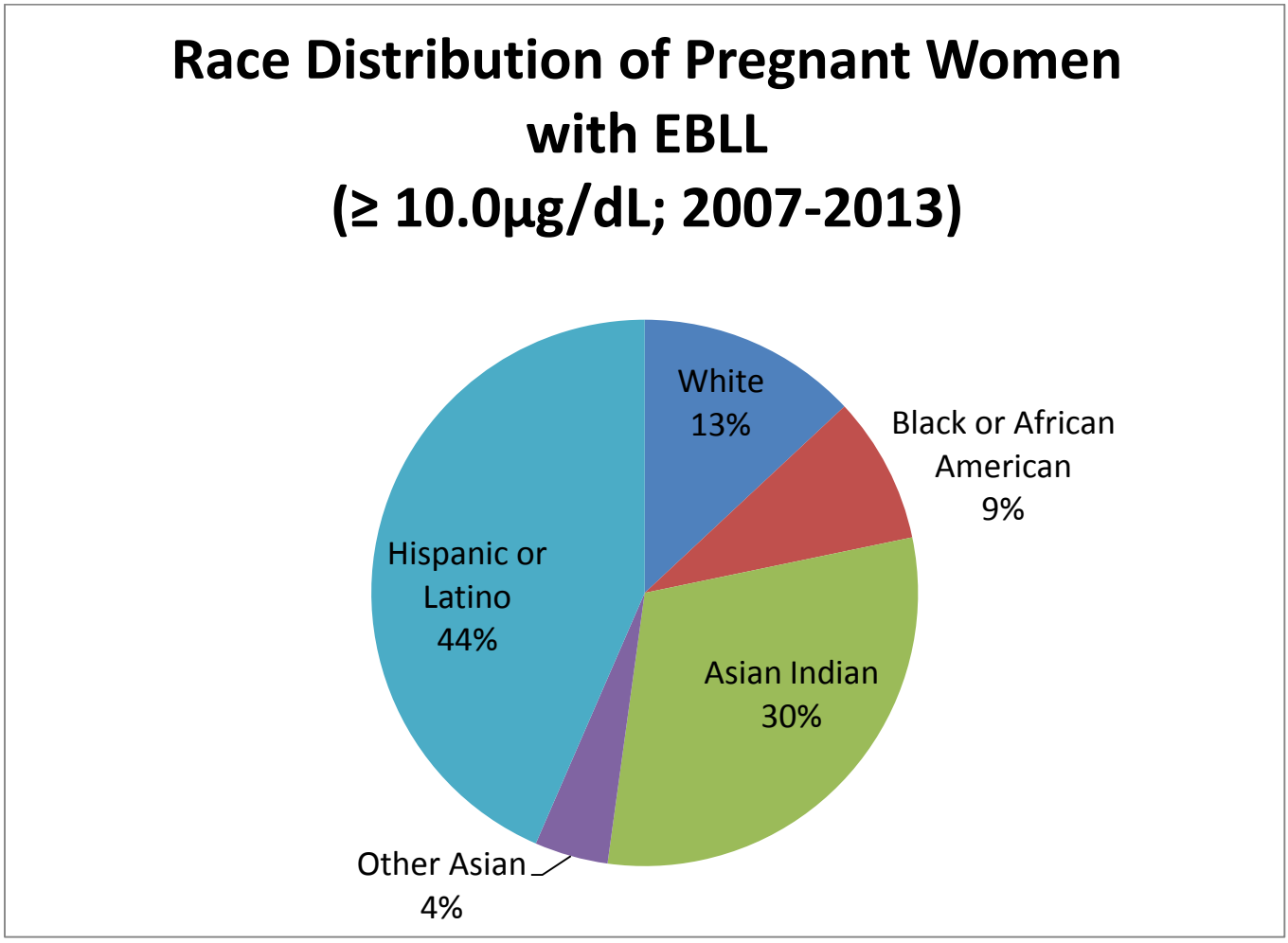

Race Distribution of Pregnant Women with EBLL (≥ 10.0µg/dL; 2007-2013)
White 13%
Black or African American 9%
Asian Indian 30%
Other Asian 4%
Hispanic or Latino 44%

Table 4: Breakdown of Non-Traditional Sources of Lead Hazards

Non-Traditional Source of Lead Hazards	Count	Percentile
Foreign cosmetics	6	37.50%
Foreign food products	2	12.50%
Mortar and pestle	2	12.50%
Foreign connections	5	31.25%
Total	16	100.00%

Graph 4