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LEAD POISONING PREVENTION IN NEWLY ARRIVED REFUGEE CHILDREN: USING THE CDC TOOLKIT

**Ellen Bloom, MPH, CHES
Indiana State Department of Health
Lead and Healthy Homes Program**

AGENDA

- Background
- Refugees in Indiana
- Risk Factors for Refugee Children
- Using the Toolkit
- CDC Testing Guidelines and Recommendations



BACKGROUND

- March 29, 2000: Two-year-old Sudanese child admitted to a New Hampshire hospital for fever and vomiting
 - Child had arrived from Egypt March 9
- Readmitted April 17
 - Child became unresponsive, apneic, and hypotensive on April 19
- A blood lead test showed her blood lead level to be 391 $\mu\text{g}/\text{dL}$

BACKGROUND

- Chelation helped decrease her BLL to 72 $\mu\text{g}/\text{dL}$
 - Child remained comatose
 - Declared brain dead on April 21
- Autopsy indicated large increase in lead exposure in the month prior to her death
 - Also indicated iron deficiency and growth retardation



BACKGROUND

- How did this happen?
 - Lead was found on the walls, floor, and window wells of child's home
 - The child had been observed eating plaster
 - No other sources (cosmetics, folk remedies, parents' employment, dishes) were found
- The case led to the development of testing guidelines for refugee children in New Hampshire

BACKGROUND

- 2004 study of refugee children in New Hampshire
 - Children's BLLs were tested upon arrival in the U.S., and again 3 to 6 months after resettlement
 - Thirty percent of the children had normal BLLs upon arrival, but then had elevated BLLs after resettlement
 - Suggests that the children were exposed to lead in the U.S.
- Basis for the CDC's recommendations on BLL testing for refugee children





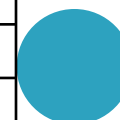
REFUGEES IN INDIANA

REFUGEES ARRIVING IN INDIANA, 2010

Country of Origin	Number of Refugees	Counties
Afghanistan	4	Marion
Bhutan	18	Marion
Burma	762	Allen, Marion, Monroe
Burundi	1	Marion
Chad	1	Marion
China	18	Delaware, Marion, Porter, St. Joseph, Vanderburgh
Comoros	1	Marion
Cuba	16	Clark, Madison, Marion
Democratic Republic of the Congo	40	Allen, Marion
Egypt	3	Marion
Eritrea	6	Marion
Ethiopia	30	Marion
Gabon	1	Marion
Ghana	2	Marion
Guinea	1	Marion
Haiti	2	Marion
India	7	Johnson, Marion, Wayne
Iran	3	Marion
Iraq	138	Allen, Marion, St. Joseph

Country of Origin	Number of Refugees	Counties
Ivory Coast	2	Marion
Jordan	2	Lake
Kenya	20	Marion
Kuwait	3	Marion
Malaysia	59	Allen, Marion
Nepal	6	Marion
Nigeria	1	Marion
Palestine	1	Marion
Rwanda	1	Marion
Somalia	25	Marion
South Africa	1	Marion
Sri Lanka	1	Marion
Sudan	25	Allen, Marion
Syria	3	Marion
Tanzania	5	Marion
Thailand	159	Allen, Marion
Uganda	1	Marion
Zimbabwe	12	Marion

Source: Indiana State Department of Health, Refugee Health Program



BY COUNTY

- 2010: 1,381 refugees resettled in 12 counties

County	Number of Refugees
Allen	150
Clark	2
Delaware	1
Johnson	3
Lake	2
Madison	1
Marion	1183
Monroe	1
Porter	1
St. Joseph	34
Vanderburgh	1
Wayne	2



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RISK FACTORS

Why are refugee children at risk of lead poisoning?

RISK FACTORS

- Lead exposure in country of origin
- Malnutrition
- Exposure upon resettlement
- Cultural practices



LEAD EXPOSURE IN COUNTRY OF ORIGIN

- Studies have shown that as many as 27% of newly arrived refugee children have elevated BLLs
- Leaded gasoline
 - Especially for children in urban environments
- Poorly glazed pottery
 - Leads to high lead levels in food
 - Most prominent source of lead in some parts of Latin America
- Point industrial sources
 - Increases lead in air and soil in areas without effective environmental controls
 - Example: Eastern Europe
- Cottage Industries



MALNUTRITION

- Common in refugee populations
 - Anemia enhances lead absorption
 - Increases risk, even in homes with minimal lead hazards
- Foods rich in iron, calcium, and Vitamin C can help reduce the amount of lead absorbed into the body
- Pica (eating items that are not food) is common in some refugee populations
 - Children with pica are at risk for lead poisoning regardless of the age of their housing



EXPOSURE UPON RESETTLEMENT

- 38 million U.S. housing units contain lead-based paint
- 24 million units have significant lead-based paint hazards
 - 25% of all of the nation's housing
- Refugee families often live in older housing due to the affordability of these units



CULTURAL PRACTICES

- Traditional medicines and cosmetics from country of origin
 - Kohl or surma
 - Azarcon or greta
 - Litargirio
 - Pay-loo-ah
- Practices such as eating on the floor





USING THE TOOLKIT



CONTENTS

- Refugee Resettlement Worker Module
 - Presentation includes:
 - Background on lead poisoning
 - Sources of lead exposure
 - Risk factors for refugee children
 - CDC environmental assessment recommendations
 - Nutritional information
 - Resources for lead poisoning prevention education
 - Goal is to assist resettlement workers in:
 - Identification and determination of possible lead hazards in the homes of newly arrived refugee children
 - Assuring blood lead screening and case management activities
 - Education of newly arrived refugee families on how to prevent lead poisoning



CONTENTS

○ Medical Provider Module

- Presentation includes:
 - Background on lead poisoning
 - Sources of lead exposure
 - Risk factors for refugee children
 - Nutritional evaluation assessment
 - Information on the importance of neurodevelopmental monitoring of children with elevated BLLs
- Goal is to encourage medical providers to:
 - Conduct blood lead testing on all newly arrived refugee children
 - Provide nutritional evaluations
 - Provide appropriate case management services, if necessary



CONTENTS

○ Resources

- Lesson Plans
- Presentation Notes
- Web links
- Additional Resources



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CDC TESTING GUIDELINES AND RECOMMENDATIONS

MEDICAL SCREENING

- Three medical interventions
 - Initial blood lead screening
 - Repeat blood lead screening
 - Nutritional evaluation
- All refugees must have a medical screening within 90 days of arriving in the U.S.
 - Assuring that a blood lead test is part of this screening is essential to begin providing necessary services
 - Any refugee child aged 6 months to 16 years should receive a blood lead test



MEDICAL SCREENING

- A repeat blood lead test should be performed 3-6 months after a child is resettled into their permanent residence
 - This will identify any BLLs that may have become elevated after resettlement
 - Any child aged 6 months to 6 years should receive this blood lead test
 - Older children should be tested as necessary (hazard exposure)



MEDICAL SCREENING

○ Nutritional Evaluation

- Should be part of initial medical screening
- Will help identify any nutritional needs to help prevent lead poisoning
- Should also include a referral to the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)
- Most refugee children are automatically entitled to receive Medicaid and WIC for at least eight months after resettlement



ENVIRONMENTAL ASSESSMENT

- Can be done by resettlement workers with very little training in environmental health hazards
 - Evaluates the potential for lead hazards
 - Four components
 - Pre-assessment
 - Visual interior assessment
 - Visual exterior assessment
 - Summary assessment



PRE-ASSESSMENT

- Was the property built before 1978?
 - If no: assessment is complete
- Can the property owner provide a current certification that the property is lead safe or lead free?
 - If yes: assessment is complete



VISUAL INTERIOR ASSESSMENT

- Worker will observe the condition of the interior walls, windows, and steps
 - Chipping or peeling paint on walls or interior window seals
 - Noticeable cracks, holes, or missing or broken components on major interior structures, such as steps or railings, that require repairs more than routine painting



VISUAL EXTERIOR ASSESSMENT

- Observe all sides of the property
- Exterior doors and windows
 - Chipping or peeling paint on the window sash or mullions
 - Two or more windows or doors broken, missing, or boarded up
- Porch and/or steps
 - Two or more major elements (porch railing or support column) missing or broken
- Roof, gutters, and downspouts
 - Missing roof parts, weathering surfaces, or extensive holes or cracks
 - Gutters or downspouts broken or missing



SUMMARY ASSESSMENT

- Determine the high risk status of a property
- High risk property:
 - Contains possible lead hazards on significant structural components
 - Warrants further environmental analysis
 - Property is high risk if hazards are identified in the interior assessment and if hazards are identified in two out of three areas of the exterior assessment



INTERNATIONAL ADOPTION AND PREVENTION OF LEAD POISONING

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INTERNATIONAL ADOPTION

- 2% of all children in the U.S. were adopted
 - 20% of those children were internationally adopted from over 100 countries
- International adoption is growing in popularity
 - Increased infertility due to delayed childbearing
 - Availability of white children through international adoption
 - Greater confidence that the birth parents of children adopted internationally will not try to claim them
 - Reluctance to adopt a special needs child domestically
 - U.S. domestic adoption policies
 - Increasing social acceptance of non-traditional families



INTERNATIONAL ADOPTION CHALLENGES

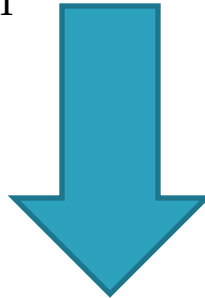
- Children adopted internationally were often abandoned in their country of origin
 - No obtainable medical history
- Children who were institutionalized prior to being adopted may have severe physical, behavioral, and cognitive delays
 - The number of internationally adopted children who were in institutional settings in their country of origin has increased over time
- Pre-adoption quality of care varies based on country of origin
- Countries which allow international adoption change often
 - Subject to economic upheaval



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Challenges lead to. . .



Difficulty obtaining health surveillance or demographic data for internationally adopted children



LEAD LEVELS IN INTERNATIONALLY ADOPTED CHILDREN

- Data is limited
- Risk varies by country of origin
- Studies show that high rates of elevated lead levels have been seen in children from:
 - Cuba and Haiti (40%)
 - Asia (37%)
 - Africa (27%)
 - Near East countries (25%)
- Overall, approximately 11% of U.S. children who were adopted internationally have elevated blood-lead levels

THEREFORE. . .

- CDC and American Academy of Pediatrics recommends that internationally adopted children be tested for lead upon their arrival in the U.S.
- Additional screens at 12 and 24 months of age

Dr. Hoot N. Owl

Please consider:
Children recently adopted
from overseas may have been
exposed to lead.



Ask your doctor
for a lead test.



**Prevent
Lead Poisoning**



Get your child tested
Get your home tested
Get the facts



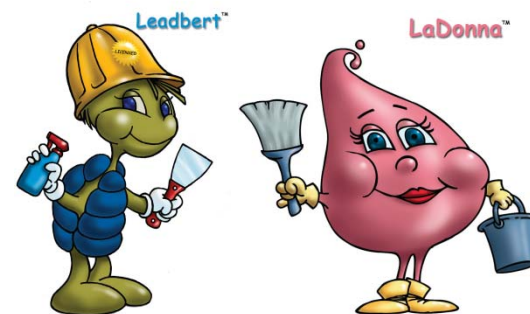
National Center for
Environmental Health,
Healthy Homes and
Lead Poisoning Prevention

<http://www.cdc.gov/nceh/lead>

Centers for Disease Control and Prevention, <http://www.cdc.gov/nceh/lead/tips/adoption.htm>

Elevated Blood Lead Levels Among Internationally Adopted Children—United States, 1998. (February 11, 2000). *Morbidity and Mortality Weekly Report*, 49 (05), 97-100.

CDC RESOURCES



○ Goals

- To raise awareness about the importance of lead testing for internationally adopted children
- To increase blood lead screening during the first medical examination in the U.S. for internationally adopted children

○ Products

- Educational e-card with prevention information
- Bookmark with a reminder about lead testing
- Reproducible parent factsheet
- Hyperlinked web buttons for adoption agencies and health care providers



FOR MORE INFORMATION

- CDC Refugee Toolkit
 - http://www.cdc.gov/nceh/lead/Publications/RefugeeToolKit/Refugee_Tool_Kit.htm
- CDC International Adoption Resources
 - <http://www.cdc.gov/nceh/lead/tips/adoption.htm>



QUESTIONS

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