



## Connecting Health & Housing: Lead Poisoning and the Home

Presented by:

The California-Nevada  
Public Health Training Center

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## Learning Objectives

### After this tutorial you will be able to...

1. Identify the healthy homes issues related to lead poisoning
2. Describe the connection between lead poisoning and the home
3. Address lead hazards in homes using healthy homes recommendations

## Identify the Problem

- Historical uses of Lead
  - Mined & used by man – 6000 years
  - Physical & chemical properties led to its vast uses
  - Industrial Period
    - Ornamental, home, & industrial uses
    - ↑ Employment in factories = High rates lead poisoning

## Identify the Exposure Sources

- Common Sources of Exposure in the U.S.
  - Lead-Based Paint
  - Dust
- Other Sources of Exposure
  - Soil
  - Water
- Non-traditional Sources
  - Imported pottery, ceramics, & candies
  - Pewter key chains
  - Tile
  - Folk remedies
  - Children's products

## Identify the Exposure Sources

- Lead in Paint
  - Added to paint to provide color & durability
  - 25% of all U.S. housing has significant lead-based hazards
  - Lead-based paint in poor condition
    - Peeling
    - Chalking
    - Chipping
    - Flaking
  - High impact surfaces areas
    - Door and window frames

## Identify the Exposure Sources

- Lead in Dust & Soil
  - Contamination occurs when it leaded- paint deteriorates or is disturbed during:
    - maintenance
    - repainting
    - remodeling
    - demolition
    - paint removal

## Identify the Exposure Sources

- Lead in Water
  - Production
    - Pipes, solders, materials used for plumbing
  - Federal Lead Contamination Control Act of 1986
    - Banned the use of lead in plumbing materials
  - Contamination through a leaching process
    - Increased velocity
    - Hot temperatures
    - Soft water (low mineral content)
    - Aged piping
    - Acidity

## Identify the Exposure Sources

- Non-Traditional Sources
  - Lead storage batteries
  - Ammunition
  - Brass
  - Ceramic cookware
  - Ethnic remedies
  - Candy
  - Ceramic Tile
  - Etc...

## Magnitude of the Problem

- Effects children across all socioeconomic strata and in all regions of the U.S.
- Vulnerable groups
  - Children between 1-6 years of age
  - Expecting mothers
  - Malnourished

*Children absorbed lead 5-10x faster than adults*

- Blood brain barrier
- Developing skeletal system
- Behaviors – pica and hand to mouth
  - Ingesting the main pathway for exposure

## Magnitude of the Problem

- Study conducted by Sargent et al. (1995)
  - Mandatory screening for children 9 months to 4 years of age
  - Correlation between socio-demographics and housing conditions
  - Children living in:

Poverty  
Single parent families  
Pre-1950s housing  
Lower rates of ownership



7-10 times  
more likely to  
have  
lead poisoning

## Magnitude of the Problem

- Signs & Symptoms in Children

*Sign and symptoms usually don't appear until dangerous amounts have been accumulated*

- Irritability
- Loss of appetite
- Weight loss
- Sluggishness and fatigue
- Abdominal pain
- Vomiting
- Constipation
- Learning difficulties

**Very high level of exposure can lead to:**

- Seizures
- Convulsion
- Coma
- Death

## Magnitude of the Problem

- Social & Economic Burden

- Blood lead levels between 2 & 10 ug/dL have been found to cause cognitive damage
  - No safe level of exposure
- High lead levels have serious and irreversible health effects
  - Lower IQ
- \$17,815 decrease in life time earnings per loss of each IQ point

## Connection to the Home



- Deteriorating lead-based paint can lead to:
  - Paint chips on the floor, window sill or other areas
  - Soil and dust contamination
- Access to contaminated surfaces
  - Hand to mouth behavior puts children at risk

## Healthy Homes Recommendations

### Reducing Exposure from traditional sources

- Have your home tested if it's built before 1978
  - Contact your local or state health department
- Reduce access to deteriorated lead-based paint; create barriers between living areas & lead sources
- Vulnerable groups should not be present during renovation work
- Wash your children's hands & toys regularly
- Wet-mop floors & wet-wipe windows
- Prevent children from playing in bare soil

## Healthy Homes Recommendations

### Reducing Exposure from non- traditional sources

- Avoid using traditional home remedies & cosmetics
- Avoid eating imported candies
- Avoid using containers, cookware, or tableware that are not known to be lead free
- Remove recalled items like toys and toy jewelry
- Only use cold tap water for drinking, cooking and making baby formula
- Beware of bringing lead home from work or hobbies

## Conclusion

- Key points to remember!
  - Lead poisoning is preventable
    - Keep children from coming into contact with lead
  - At low levels of exposure children may not show any signs or symptoms
    - The CDC recommends that children should be screened at 12 and 24 months. All children aged 36-72 months who have not been previously screened should also receive a blood lead test
    - Contact your doctor or local health department for testing
  - If remediation isn't possible, low or no cost precautions can be taken to reduce risk of exposure