JOSIAH HILL III CLINIC

Lead Education Curriculum for Promotoras and Parish Nurses
Utilizing the Popular Education Model

A. Opening question/brainstorm: what do you already know about lead? Do you have any experience with lead exposure?

B.

C. Objective One

a. What is lead?
   i. A soft, highly toxic metal
   ii. Occurs naturally in the earth
   iii. Cumulative poison
b. Identify sources of lead exposure in the environment (PP Slide 1)
   i. Historic exposure to lead
      1. The use of lead as an additive to gasoline was banned in 1996
      2. Federal legislation in the 1970's decreased smokestack emissions and airborne exposure
   ii. Environmental/Other
      1. Lead based paint and lead-contaminated dust
      2. Soil
      3. Water
   iii. Hobbies and related activities
      1. Children's toys
   iv. Occupational and "secondary transmission"
      1. Painting, automotive, or recycling industries
   v. Miscellaneous
      1. Traditional home remedies
      2. Ceramic pottery
      3. Imported candy
c. Identify the risk factors for lead exposure
   i. Risk assessment questionnaire (PP Slide 2)
   ii. The single most important factor in managing lead is identifying and reducing exposure to lead
d. Identify the populations at risk of lead poisoning
   i. Pregnant women
      1. Absorb 85% of the lead to which they are exposed to

2. The infant's blood lead level at birth is about 85-90% as high as the mother's blood lead level

3. Maternal cord blood lead levels (10-15) is associated with premature births, reduced birth weight, decreased stature and inability to maintain steady posture
4. Exposure to baby during pregnancy can cause birth defects, brain damage, hearing loss or even death

ii. Children
1. Hand-mouth mechanism
2. Physically spend a great deal of time where lead exposure is likely (i.e. floor, etc)
3. Absorb lead more easily than adults, 50% of ingested lead is absorbed vs. 10% in adults
4. Poorly excreted by body after exposure, only 32% vs. 99% for adults after about two weeks
5. Lead deficiency contributes to greater absorption in GI tract
6. Still developing their brain and central nervous system
7. Lead poisoning in American children has decreased by about 86% since the late 1970's

e. Activity One: Lead in Our Community (Map Exercise)

- **Objective Two**
  e. The harmful effects of lead on the body (Activity Two: Lead and Our Bodies)
  i. Transmission modes
  1. Inhalation
  2. Ingestion
  a. Lead-containing dust (most common)
  b. Metallic object containing lead
  c. Drinking water
  d. Food

ii. Blood lead levels (PP Slide 3)
1. There is no safe level of lead
2. Majority of children and adults in the US have blood lead levels less than 2 µg/dL
3. Public health action level: BLL 10 µg/dL

iii. Symptoms
1. Less severe cases: Abdominal pain, constipation, diarrhea, headache, nausea, fatigue, irritability, dizziness, weakness and muscle pain, anemia

2. Severe cases: warning signs of acute, serious brain swelling may include vomiting, irritability, restlessness, tremors, and progressive drowsiness, seizures, coma and possibly death

iv. Effects (PP Slide 4)
    1. Organ damage
        a. Brain, liver, and kidney damage
        b. High blood pressure
        c. Impaired hearing
        d. Reproductive health
    2. Behavioral problems
        a. Learning disabilities
        b. Hyperactivity, aggression and antisocial behavior
    3. Developmental problems
        a. Growth, speech delays
        b. Lowered intellect (IQ level)
        c. Slowed development
        d. Memory or concentration problems
v. Cancer risk
    1. Lead and lead compounds are reasonably anticipated to be human carcinogens according to the DHHS
    2. Probable human carcinogens according to the EPA
vi. Excretion mechanisms
    1. Gastrointestinal tract
    2. Kidneys
    3. Urine
    4. Perspiration (negligible amount)
vii. Lead removal timeline
    1. Blood: one month
    2. Soft tissue: one and a half months
    3. Bones: 25-30 years

- **Objective Three**

f. Activity Three: Radio Play (together in large group)
g. The role of the state (PP Slide 5)
    i. Surveillance
        1. Prevalence rates
    ii. Case management
h. The role of the counties

i. Treatment options
    i. Relocation
    ii. Chelation
        1. Only recommended for very high BLLs: <45 µg/dL in children, ≥100 µg/dL in adults
        2. Does not improve scores on tests of cognition, behavior or neuropsychological functions except in patients with extremely high BBLs

        3. Can redistribute body, causing an increase in soft tissue lead concentrations, including the brain

- **Objective Four**

j. The role of the health care providers and community health workers
    i. Education
        1. Prevention
        2. Increasing lead testing rates
    ii. Advocacy
        1. Principles of social justice (PP Slide 6)
        2. Social determinants of health (income, social support networks, physical and social environments, education, etc.)
        3. Opportunities with JHC

k. Lead-related resources in the community (PP Slide 7)
    i. Testing resources
        1. Blood lead testing is the only acceptable laboratory test for screening and confirming lead poisoning
        2. Venipuncture is preferred but capillary testing is accepted if finger is properly cleaned

l. How to access lead remediation programs for housing
    i. Remodeling guidelines

m. What can you do (PP Slide 8)
    i. Nutrition
        1. Increase intake of iron, calcium and vitamin C
        2. Low-fat diet
    ii. Housekeeping
    iii. Personal care

e. Activity Four: Creating a Personal Action Plan (break-out groups)