Lead and Iron Deficiency Screening

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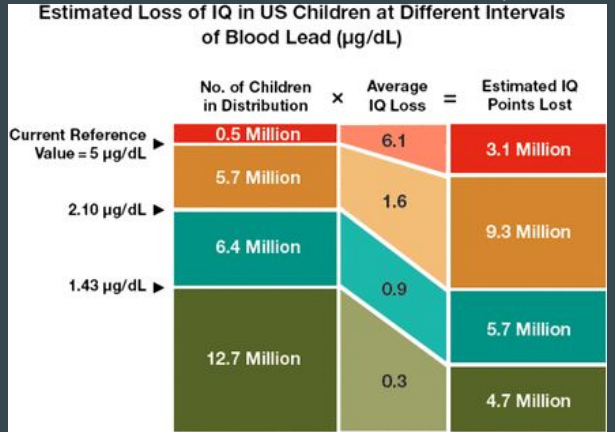
Lead Poisoning

- The CDC estimates there are about half a million children between the ages of 1 and 5 years old in the US who possess blood lead levels ≥ 5 ug/dL
- Still over 4 million children estimated to reside in housing where they are exposed to lead, despite substantial environmental improvements
- The goal of primary prevention is to minimize the neurodevelopmental effects of lead poisoning through source control and early detection



Lead Risk Assessment

- AAP recommends that the risk for lead poisoning be assessed at 6, 9, 12, 18, and 24 months of age, and annually thereafter through six years of age
- The risk of lead poisoning is increased in children who:
  - Live in or visit a home or child care facility with an identified lead hazard
  - Live in or visit a home or child care facility that was built before 1978, particularly before 1960, and is in poor repair or was renovated in past 6 mo
- Other exposures that may increase the risk of lead poisoning include folk remedies, certain types of ceramics, pewter cookware, and certain parental occupations (smelting, smoldering, auto body repair) or hobbies

Targeted Lead Testing

- AAP Council on Environmental Health suggests blood lead level testing for children 12 to 24 months of age who live in communities with 1 or more of the following:
  - Inadequate data on the prevalence of elevated BLLs
  - ≥ 25% of housing built before 1960
  - ≥ 5% of children 12 to 24 mo of age with BLLs ≥ 5 mcg/dL
- Children and adolescents between 6 months and 16 years who enter the US as an immigrant, refugee or international adoptee should be testing for BLL at time of arrival
- All children enrolled in Medicaid are required to receive blood lead screening tests at age 12 and 24 months

Recommendations on Management of Lead Exposure

Lead Level: < 5ug/dL

- Repeat BLL in 6-12 months if child is at high risk
- Provide anticipatory guidance about common sources of environmental lead exposure

Lead Level: 5-14 ug/dL

- Retest venous BLL in 1-3 months to verify that level is not rising. If stable or decreasing, retest in 3 mo.
- Most states require elevated BLL reported to the state health dept
- Take careful environmental history
- Perform structured developmental screening evaluations at well child visits

Recommendations on Management of Lead Exposure

Lead Level: 15-44 ug/dL

- Confirm with repeat venous sample in 1-4 weeks
- Consider abdominal imaging for children with history of pica
- Any treatment requires consultation with expert; contact poison control or local pediatric environmental health unit

Lead Level: > 44 ug/dL

- Confirm with repeat venous sample within 48 hours
- Consider hospitalization or chelation therapy (managed with assistance of an experienced provider)
- Contact CDC, poison control, or local pediatrics health environmental unit for assistance

Iron Deficiency Anemia

Risk Assessment

- AAP suggests performing brief review of IDA risk factors for all infants at all well child evaluations from 4 to 36 months, and annually thereafter
  - Young infants: history of prematurity, LBW, administrations of erythropoietin for anemia of prematurity
  - Under 12 months: use of “low iron” formula, nonformula cow’s milk, goat’s milk or soy milk, fewer than two servings/day of iron-rich foods after 6 mo of age
  - 12 months and older: milk intake > 24 oz daily, fewer than 3 servings daily of iron-rich foods

Risk factors for iron deficiency anemia in infants and young children

Period	Risk factors
Perinatal	Maternal iron deficiency
	Prematurity
	Administration of erythropoietin for anemia of prematurity
	Perinatal hemorrhagic events (eg, twin-twin transfusion or fetal-maternal hemorrhage)
Infancy	Dietary risk factors: • Lack of iron supplements for breastfed infants* • Use of low-iron infant formula • Feeding of unmodified (non-formula) cow's milk, goat's milk, or soy milk¶ • Insufficient iron-rich complementary foods△
	Other risk factors: • Disorders with GI blood loss (eg, milk protein-induced proctocolitis) • Malabsorptive disease
1 to <12 years	Dietary risk factors: • Excessive intake of cow's milk◇ • Insufficient iron in foods§
	Other risk factors: • Disorders with GI blood loss (eg, inflammatory bowel disease, or chronic gastritis) • Malabsorptive disease (eg, celiac disease, or chronic intestinal infections) • Obesity

Iron Deficiency Anemia

Laboratory Screening

- AAP recommends:
  - Universal screening of all children at approximately 1 year of age
  - Screening of children with identified risk factors, repeat testing at 15 and 18 months
  - For children with special health needs (chronic infection, inflammation disorders, chronic GI dysfunction, history of GI surgery, or restricted diets)
- Method:
  - Full CBC; POC Hemoglobin (minimum lab screen for IDA)
  - If substantial risk factors, recommend serum ferritin level with initial screen
- Common definitions of low Hgb are <11 g/dL in children 6 mo to < 5 years, and <11.5 g/dL in children 5 to < 12 years