

## Nutritional Assessment and Interventions

**T**he assessment and remediation of lead sources should be the top priority for the management of children with elevated blood lead levels (EBLLs); however, nutritional interventions also may be beneficial. While it has not yet been proven that nutrition has a clinically important impact on EBLLs in children, some of the risk factors for EBLLs, such as low socioeconomic status, also are risk factors for poor nutritional status. The following commonly used nutritional interventions for iron, calcium and vitamin C are based on various studies and generally accepted nutritional principles.

### Iron and Anemia

Children with EBLLs often are at risk for iron deficiency anemia. Despite declines in its prevalence, iron deficiency remains the most common nutritional deficiency in infants and young children. Furthermore, iron deficiency is the most common cause of anemia in young children. Some studies indicate that as many as 9% of toddlers in the United States are iron deficient. Current case management guidelines from the Centers for Disease Control and Prevention (CDC) recommend a hemoglobin or hematocrit test for all children with an EBLL. If anemia is detected, additional laboratory tests to assess the child's iron stores should be performed. This is important because anemia in a child with an EBLL between 20-40 µg/dL is more likely due to iron deficiency than lead poisoning. The perception that the anemia is always caused by lead poisoning is incorrect. EBLLs between 20-40 µg/dL do not usually cause anemia. The anemia that is caused by lead poisoning occurs in more severe exposures where EBLLs are above 40 µg/dL.

Iron deficiency is a serious problem that should be treated because it can delay neuro-development independently of an EBLL. The use of iron supplements among children with EBLLs and iron deficiency has been shown to improve their developmental scores, suggesting that the effects of iron deficiency on cognition can be partially reversed among children with EBLLs. Children at risk for anemia should have a nutritional assessment to evaluate their dietary intake of iron, as well as calcium and vitamin C.

### Calcium

Even though there is little evidence that a child typically considered at high risk for lead exposure is at greater risk for low calcium intake than children without EBLLs, the frequency of inadequate calcium intake among all children makes it important to verify that a child with an EBLL is receiving enough calcium. Studies have shown an inverse association between dietary calcium intake and BLLs and thereby reinforce the importance of adequate calcium intake (i.e., two servings per day of dairy products or other calcium-

rich foods). Because of a lack of clinical evidence supporting their effects, however, the use of calcium supplements beyond the adequate intake levels is not recommended.

### Vitamin C

Although there is fairly strong evidence to support giving vitamin C to adults with EBLLs, there is insufficient evidence to recommend for or against vitamin C supplementation for children with EBLLs. It is important to note that CDC recommends giving all children 6 months and older at least two servings of foods rich in vitamin C per day for the prevention of iron deficiency.

### Summary

Despite no clinically-proven relationship between specific nutrients and children with EBLLs, evidence suggests that some nutritional measures may reduce lead absorption in children. However, children with EBLLs often are at risk for poor nutrition. Because of this probable link, such children and their caregivers should receive nutritional counseling to help maintain a well-balanced and age-appropriate diet.

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- *Plus:* information about where to order preprinted labels for lab slips

## New Reporting Rules

**T**he TDH has published new rules effective June 1, 2003 for the reporting of child blood lead levels to the Child Lead Registry. The new rules clarify what to report, who is required to report and the procedures to follow in order to report.

It is important to note that it is now a requirement to report ALL blood lead levels.

In addition, the following information needs to be included:

- Child's name
- Date of birth
- Race
- Blood lead result
- Name and address of testing laboratory
- Address
- Gender
- Ethnicity
- Type of blood sample

You will be receiving our new brochure that outlines the reporting requirements — look for it in the mail. If you would like additional copies, you may request them via email or order them directly from the warehouse through our website, <http://www.tdh.state.tx.us/mamd/litcat/default.asp>. Ask for publication # 6-221.

### We need your help:

6,366 blood lead results from June 2003 were missing required information. When the blood lead report is incomplete, a member of our staff must call your office to obtain the missing elements.

Report the child's address and required information

1. To the Child Lead Registry (if you report), or
2. To your laboratory (if they report for you). Assure that your laboratory is reporting all the required information to the Child Lead Registry.

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#### Assessment

- Test children at risk for anemia (e.g., those from low income, migrant, or recently arrived refugee families or those qualifying for the Special Supplemental Nutrition Program for Women, Infants and Children [WIC]).
  - Between ages 9 and 12 months
  - 6 months later
  - Annually from ages 2 to 5 years
- Evaluate the diet of children at risk for anemia, paying particular attention to dietary iron, calcium and vitamin C.

#### Interventions

- Evaluate the WIC eligibility of children with EBLLs and ensure their access to this program if eligible.
- Advise caregivers to provide children with an adequate intake of iron-containing foods. Recommend that they:
  - Introduce iron-fortified cereals and pureed meats as soon as the child is developmentally ready.

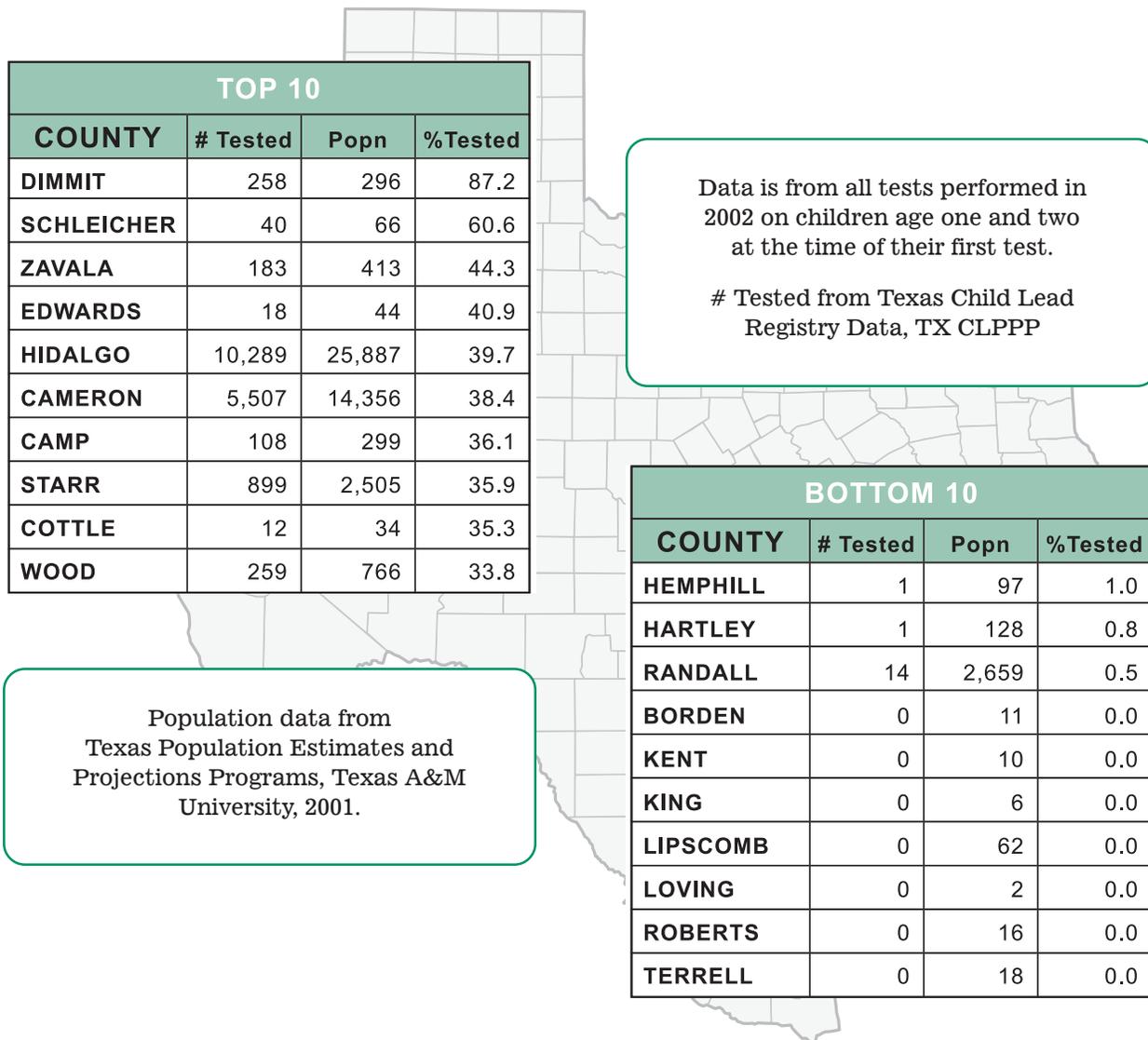
- Provide one serving of lean red meat per day to older children.
- Provide supplements only under the supervision of a physician or nutritionist and only when anemia or iron deficiency is documented.
- Encourage caregivers to provide children with adequate intake of foods that contain vitamin C. Recommend that they:
  - Provide two servings per day of foods rich in vitamin C (e.g., fruits, vegetables, or juice), preferably with meals, as a way of improving their iron absorption.
  - Provide supplements only under the supervision of a physician or nutritionist.
- Encourage caregivers to provide children with adequate intake of calcium (500 mg/day @ 1-3 years; 800 mg/day @ 4-8 years). Recommend that they:
  - Provide two servings of dairy products per day, unless they are lactase-deficient.

- Provide lactase-deficient children with sufficient dietary calcium from other sources (e.g., broccoli, greens, kidney beans, and calcium-fortified juices).
- Do not recommend giving children calcium supplements except under the supervision of a physician or nutritionist.
- Do not encourage a low-fat diet as a means of lowering children's EBLLs. Not only is there no clinical evidence to support the implementation of such a diet, but dietary fat is an important constituent in the diets of children, especially those less than 2 years of age.
- Always keep recommended interventions within the ability of the caregiver to implement them.

For more information, see the publication, *Managing Elevated Blood Lead Levels Among Young Children: Recommendations from the Advisory Committee on Childhood Lead Poisoning Prevention*, March 2002.

## 2002 Testing Data

### Counties Testing the Most and the Fewest Children in 2002.



### A NOTE TO HEALTH CARE PROVIDERS:

Have you submitted specimens to the Texas Department of Health Laboratory and failed to receive the test results? A large number of specimens submitted to the laboratory are missing the provider's name on the Specimen Submission Form.

To assure you receive patient test results, include all required information and ensure that it is legible. This will also assist us in conducting timely follow-up on children with elevated blood lead levels.

You may obtain labels preprinted with your name from the laboratory by calling **1-800-925-9126**.

If you have not received lead results from the laboratory, please call them at **512-458-7578**.

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**Look for our next newsletter to contain information on:**

- Developmental Assessment

**To order educational materials:**

- call 1-800-588-1248
- or visit our website:  
[www.tdh.state.tx.us/lead](http://www.tdh.state.tx.us/lead)

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