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CDC, National Center for Chronic Disease Prevention
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Press Release

CDC identifies nutritional deficiencies among young children

The Centers for Disease Control and Prevention (CDC) in collaboration with the Georgia Department of Human Resources, Division of Public Health, recently identified six cases of nutritional rickets and three cases of other nutritional deficiencies in young children, according to a report in the March 30, 2001, issue of *Morbidity and Mortality Weekly Report (MMWR)* published by CDC.

Nutritional rickets, a condition that causes weak or deformed bones in young people, is rare in the United States since the introduction of vitamin-D fortified milk and infant formula several decades ago. Health officials identified these cases among children who were admitted to Georgia hospitals for malnutrition. The cases occurred in infants who had been breast-fed for more than 6 months without receiving vitamin-D supplements.

"These cases underline how important it is for parents of infants and young children to discuss diet with a child's pediatrician to ensure that their child's nutritional needs are being met," said Dr. William Dietz, director of CDC's nutrition and physical activity program. "Breast milk is the best source of nutrition for infants but parents of breastfed infants should consult with their pediatrician to determine if their infant needs vitamin-D supplementation."

Parents also need to ensure that children get enough vitamin-D after they are weaned from breast milk or fortified infant formula. "Children obtain vitamin-D from the diet primarily through vitamin-D fortified milk and breakfast cereals," said CDC Epidemiologist Dr. Shanna Nesby-O'Dell. "Infant cereals and other dairy products such as cheese and yogurt do not contain vitamin-D. To prevent rickets, parents who transition their children to milk at 12 months of age should use a milk that is fortified with vitamin-D."

People also get vitamin-D through exposure to sunlight. Because the melanin in skin filters sunlight, children with increased skin pigmentation require more sunlight exposure to produce vitamin D. At least three of the Georgia children with nutritional rickets had dark skin complexions. However, with increased concern about the long-term harmful effects of

sun exposure, dietary sources of vitamin-D may become more important than sun exposure to meet the body's requirement for the vitamin.

Rickets is not always easy to recognize in infants and toddlers because its early symptoms mimic other conditions. Infants often present with seizures and high fevers associated with a secondary infection. If the child is treated for infection and no blood is drawn, there will be no indication of low calcium levels, which would suggest rickets. Toddlers with the condition may experience a delay in learning to walk, low-height-for age, curvature of the spine, and bowing of the legs and arms.

There are no national rates for rickets because it is not a reportable public health disease, and there are no surveillance systems that capture information about it. The Georgia cases probably represent only part of the true prevalence of rickets, as the study only reviewed cases of children who were hospitalized.

In addition to identifying children with nutritional rickets, doctors found three children who had malnutrition associated with inadequate energy or protein in their diet. The protein energy-deficient children had such clinical signs as swelling, weight loss or inadequate growth, or thinning of hair. Two of the three children had a skin condition attributed to food allergies. Concern about these allergies led to inappropriate diet restrictions and subsequent protein energy malnutrition.

Dr. Norman Carvalho, a pediatrician at Children's Health Care of Atlanta, who identified the first two cases, said, "Nutritional diseases are entirely preventable. It is important for physicians to obtain a good diet history for the children they see, and especially to inquire about use of milk alternatives, which could be deficient in necessary nutrients."

Further insight into the Georgia cases is published in two *Pediatrics* articles (embargoed for release until 4:00 p.m. EST, March 29, 2001): 1) "Nutritional Rickets in Georgia" authored by CDC Epidemiologist Kay Tomashek, MD MPH et al., formerly of the Georgia Department of Human Resources, Division of Public Health; and 2) "Severe Nutritional Deficiencies in Toddlers Resulting from Health Food Milk Alternative," authored by Norman Carvalho, MD et al.

As a result of the Georgia investigation, the Food and Drug Administration (FDA) is now requesting that malnutrition associated with the use of alternative milk beverages be reported to the FDA's Med watch system. Also, the American Academy of Pediatrics is currently examining recommendations on the need for vitamin-D supplementation among breast-fed infants.

For more information about nutrition, please visit <http://www.cdc.gov/nccdphp/dnpa>.

CDC protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national and international organizations.

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