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Director

State of California—Health and Human Services Agency
Department of Health Care Services



ARNOLD SCHWARZENEGGER
Governor

July 26, 2007

CHDP Provider Information Notice No.: 07-10

TO: ALL CHILD HEALTH AND DISABILITY PREVENTION (CHDP)
PROGRAM PROVIDERS AND MEDICAL MANAGED CARE PLANS

SUBJECT: JOINT LETTER FROM CHILDREN'S MEDICAL SERVICES (CMS)
BRANCH, WOMEN, INFANTS AND CHILDREN (WIC) SUPPLEMENTAL
NUTRITION BRANCH AND MATERNAL, CHILD AND ADOLESCENT
HEALTH (MCAH)/OFFICE OF FAMILY PLANNING BRANCH
REGARDING VITAMIN D AND RICKETS

The purpose of this Provider Information Notice (PIN) is to provide you with a joint letter signed by Children's Medical Services, Women, Infants & Children Supplemental Nutrition and Maternal, Child and Adolescent Health/Office of Family Planning in response to a resurgence of rickets in California. The attached letter serves as a reminder about the need for vitamin D supplementation in infancy and childhood as part of CHDP anticipatory guidance. Two informational attachments accompany the letter:

- Rickets/Vitamin D Background Information and Resources, and
- Frequently Asked Questions and Answers about Vitamin D Supplementation for Infants and Children.

Original signed by Marian Dalsey, M.D., M.P.H., Chief

Marian Dalsey, M.D., M.P.H., Chief
Children's Medical Services Branch

Enclosures

State of California—Health and Human Services Agency
Department of Health Services



California
Department of
Health Services

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June 27, 2007

TO: PRIMARY WOMEN, INFANTS AND CHILDREN (WIC) SUPPLEMENTAL NUTRITION PROGRAM CONTACTS, CHILDREN'S MEDICAL SERVICES (CMS) BRANCH CONTACTS, AND MATERNAL, CHILD AND ADOLESCENT HEALTH/ OFFICE OF FAMILY PLANNING (MCAH/OFP) BRANCH CONTACTS

SUBJECT: VITAMIN D AND RICKETS

We are writing to you in response to media coverage regarding a reported resurgence of rickets in California. Although the California Department of Health Services (CDHS) does not currently collect surveillance data on rickets to identify the extent of the increased diagnosis, we are greatly concerned about any incidence of this debilitating chronic condition. As a first step, we are providing you with Recommendations as listed below, the attached "Rickets/Vitamin D Background Information and Resources" (attachment 1) as well as an attachment entitled "Frequently Asked Questions and Answers about vitamin D Supplementation for Infants and Children" (attachment 2).

Background

On August 23, 2006, the Oakland Tribune reported on rickets in the East Bay. A chart review of all patients seen at Children's Hospital Oakland revealed a large number of cases of rickets diagnosed among children up to age two. Many cases were serious and one required surgery to correct malformed bones. Other news articles and radio discussions have followed.

Recommendations

Steps to ensure appropriate vitamin D supplementation should be provided in situations where there is a risk of vitamin D deficiency, such as lack of dietary vitamin D, restricted sunlight exposure, or dark skin. The California Department of Health Services endorses the AAP guidelines on vitamin D supplementation. (Gartner, L., et. al. "Prevention of Rickets and Vitamin D Deficiency: New Guidelines for Vitamin D Intake" Pediatrics, April

2003, Vol. 111(4)) According to the AAP, beginning by two months of age, 200 IU of vitamin D should be given in the following situations:

1. **Exclusively breastfed infants under one year of age** (no formula),
2. **Breastfed infants under one year of age, who ingest less than 500 mL per day** (approximately 16 oz.) **of vitamin D fortified infant formula,**
3. **Non-breastfed infants under one year of age who ingest less than 500 mL per day of vitamin D fortified infant formula, and**
4. **Children and adolescents who do not get regular sunlight exposure, and do not ingest at least 500 mL per day of vitamin D fortified milk, or do not take a daily multivitamin supplement containing at least 200 IU of Vitamin D.**

The California Department of Health Services supports the AAP guidelines by reimbursing for vitamin D supplementation as a Medi-Cal drug benefit. Covered products are found under the prescription drugs section in the Contract Drug List (CDL):

http://files.medi-cal.ca.gov/pubsdoco/publications/masters-mtp/part2/drugscdlp2_p00.doc

Action Needed

CDHS strongly recommends that all parents and caretakers of young children be provided anticipatory guidance on infant and toddler feeding practices and nutrition, including the following:

- **Breastmilk is the optimal feeding for infants**, but a supplemental source of vitamin D is recommended by two months of age. Emphasize the importance of weaning children to a diet adequate in both vitamin D and calcium in order to promote adequate bone mineralization.
- **Initiate vitamin D supplementation when infants are fully and/or partially breastfed** (see AAP guidelines). Discuss parental questions regarding vitamin D supplementation and UVB exposure for breastfed infants. The AAP does not recommend direct sun exposure or sunscreen use for infants under six months of age.
- **The presence of adequate vitamin D is necessary in order to utilize the calcium available in foods such as cheese and yogurt.** When conventional dietary sources of vitamin D get displaced, children will need supplementation. For instance, when using soy milk, tofu or calcium-fortified juices not fortified with Vitamin D, supplementation or the addition of Vitamin D-fortified food products is needed.

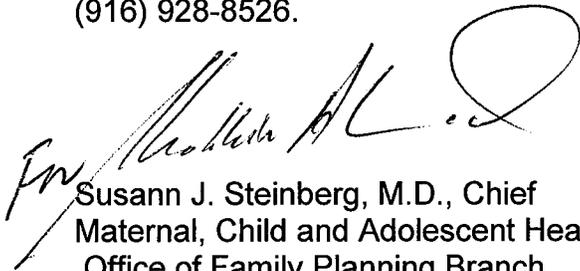
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Should you have any additional questions regarding vitamin D and rickets, please contact your Nutrition Consultant:

MCAH/OFP: Suzanne Haydu, M.P.H., R.D., Public Health Nutrition Consultant at (916) 650-0382,

CMS: Judy Sundquist, M.P.H., R.D., Public Health Nutrition Consultant at (916) 322-8785,

WIC: Laurie Pennings, M.S., R.D., I.B.C.L.C., Chief, Breastfeeding Promotion Unit, at (916) 928-8526.



Susann J. Steinberg, M.D., Chief
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Rickets/Vitamin D Background Information and Resources 6/2007

Background

Vitamin D deficiency is a significant pediatric health issue, with complications including rickets, hypocalcemic seizures, limb pain and fracture. For older infants and children, risk factors include dark skin color, prolonged exclusive breastfeeding without a vitamin D supplement, restricted sun exposure including use of sunscreen and certain medical conditions. Rickets is a bone disease that results from the inability of the body to form the structure for normal bones, resulting in malformation and loss of function. It is usually caused by inadequate vitamin D synthesis from sunlight and a lack of dietary vitamin D. The discussion in the US focuses on vitamin D deficiency as the cause for rickets, as the majority of infants are almost universally fed breastmilk or formula and as a result calcium intake is adequate. However, children may be deficient in both vitamin D and calcium. New research is developing and expanding the role of vitamin D supplementation in child health. Rickets is an extreme and a late outcome. If we use the presence of rickets as an indicator, we are, in effect, waiting until the child has sustained a chronic condition. It is better to monitor indicators for risk, such as adequacy of vitamin D intake in high risk groups; some high risk groups include individuals with dark skin, limited or no exposure to direct sunlight, and breastfed infants not receiving a vitamin D supplement.

The sources of vitamin D in breastfed infants are human milk and sun exposure, though the American Academy of Pediatrics (AAP) recommends no direct sunlight exposure for infants under 6 months of age. A major risk factor for breastfed infants is maternal vitamin D deficiency, though vitamin D from maternal milk is insignificant. Breastmilk naturally contains low levels of vitamin D and supplementing the mother with the tolerable upper limit of vitamin D does not substantially increase the concentration in breastmilk. To increase the vitamin D concentration of breastmilk to a level adequate to prevent vitamin D deficiency in the infant, breastfeeding mothers would need to be supplemented with a level of vitamin D that is above the level currently considered safe (per Dietary Recommended Intake for vitamin D). To prevent vitamin D deficiency in newborn infants, pregnant women at risk for vitamin D deficiency (especially those who are dark-skinned or veiled) should be screened and treated. Breastfed infants should be supplemented with vitamin D, even if the mother is vitamin D-sufficient.

The most common dietary source of vitamin D is from vitamin D fortified foods such as cow milk and vitamin D fortified formula. Soy milk, cheeses and yogurts may not be fortified with vitamin D. Sixteen ounces per day of vitamin D fortified milk or infant formula will supply 200 IU of vitamin D, the level currently considered to be adequate by the Institute of Medicine. Regular sunlight exposure can prevent vitamin D deficiency, but the safe exposure time for children is unknown. Persons with darker skin, including Africa Americans, are at increased risk of vitamin D insufficiency because melanin in skin interferes with

vitamin D synthesis from sunlight. Therefore, persons with darker skin need to spend more time in sunlight to synthesize the same amount of vitamin D as a person with lighter skin.

Resources

The AAP published the report, "Prevention of Rickets and Vitamin D Deficiency: New Guidelines for Vitamin D Intake," in April, 2003¹. The report is not a policy but provides guidance for the clinician. It does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, must be considered. A copy of the report can be found at: www.pediatrics.org/cgi/content/full/111/4/908. The American Academy of Pediatrics (AAP) also published further information in "Optimizing Bone Health and Calcium Intake of Infants, Children, and Adolescents," in February, 2006² which can be found at:

<http://pediatrics.aappublications.org/cgi/content/full/117/2/578>

The Children's Health and Disability Program (CHDP) Provider Notice No. 05-04, entitled Childhood Bone Health Educational Resources for CHDP Program Providers and CHDP Provider Resources for Child Bone Health Education on the Internet provides additional information and resources on childhood bone mineralization. The CHDP Provider Notice No. 05-04 and internet resource can be accessed from the CHDP webpage at:

<http://www.dhs.ca.gov/pcfh/cms/onlinearchive/pdf/chdp/providerinformationnotice/2005/chdppin0504.pdf> and

<http://www.dhs.ca.gov/pcfh/cms/onlinearchive/pdf/chdp/programletters/2005/chdpl0504a1.pdf> .

References:

- 1) Gartner, L., et. al. "Prevention of Rickets and Vitamin D Deficiency: New Guidelines for Vitamin D Intake" Pediatrics, April 2003, Vol. 111(4).
- 2) Greer, F, Krebs, N, and Committee on Nutrition. "Optimizing Bone Health and Calcium Intakes of Infants, Children, and Adolescents" Pediatrics, February 2006, Vol. 117.

**Frequently Asked Questions and Answers
About Vitamin D Supplementation for Infants and Children 6/2007**

Your clients may receive recommendations from a health care provider to give their babies vitamin D drops. They may ask you questions about these recommendations and wonder about the adequacy of their breast milk. Listed below are answers to some questions that you may receive or that you may have yourself regarding vitamin D supplementation. It is important to refer the client back to their health care provider if you do not have access to their medical chart and are not aware of the other factors that could be involved. The goal of this frequently asked questions and answers is to provide you with general information about vitamin D, rickets and breastfeeding.

Question	Answer
1. What is vitamin D?	Vitamin D is produced in the body with the aid of direct exposure of the skin to ultraviolet B radiation in sunlight. There are few dietary sources of vitamin D.
2. What are the dietary sources of vitamin D?	Common natural food sources do not contain adequate amounts of vitamin D to meet nutritional needs for growth. So food fortification is used to meet the population's need for this nutrient. Fatty fish oils and livers (liver may contain toxic contaminants, so should be consumed in limited amounts) are the few natural sources of this vitamin. Breast milk contains some vitamin D which partially meets the needs of the breastfed infant. The most common dietary source is from fortified foods such as vitamin D fortified cow and soy milk. Not all milk is fortified with vitamin D – you have to read the label. Most cheeses and yogurts are not fortified with vitamin D.
3. Why should I worry about vitamin D?	When children don't get enough vitamin D, their bones and muscles can become weak and it is easier for them to get sick and break or bow bones. Not enough vitamin D can prevent a child from growing well. After a while, these children can get rickets, a disease of severe and chronic bone demineralization.
4. Why did my doctor tell me to give vitamin D drops to my baby?	Our bodies can make vitamin D when we get enough sunshine. However, some people, especially babies, do not get the amount of sunshine needed to make enough vitamin D. Pollution, bad weather, dark skin and use of sunscreens all make it hard to get enough

	<p>sunshine. Additionally, adequate dietary sources of vitamin D for infants are limited to fortified infant formula.</p> <p>Your doctor is concerned about the health of your baby. If breastmilk is the only milk you are feeding your baby, you will need to give vitamin D drops as a way to get enough vitamin D. Keep breastfeeding - it's the best for you and your baby!</p>
5. Is my breastmilk missing something?	Your milk offers many nutrients and special immunities that other feedings do not offer. Vitamin D can easily be supplemented when babies receive most of their nutrition from breastmilk.
6. Should I be giving my baby formula?	<p>Breastfeeding is the normal and recommended way to feed your baby!</p> <p>Don't give your baby infant formula just to get vitamin D, as introducing formula will decrease your milk supply. Your baby will receive the best nutrition by breastfeeding and following your doctor's advice about vitamin D supplementation.</p>
7. Why don't formula-fed babies need this supplement?	If a baby or child is not consuming at least 16 oz of formula per day, they would also need the supplement. Because vitamin D is very important for young growing babies, all formula sold in the US must contain a certain amount of vitamin D. Again, it is important to continue breast feeding because there are many nutrients found in breast milk that formula does not have.
8. If I breastfeed and give my child milk or formula, could s/he be getting too much vitamin D?	<p>No. The amount recommended by doctors is not high enough to worry about overdosing your child. Doctors do recommend to stop giving vitamin D supplements once your child is drinking 16 ounces per day of vitamin D fortified milk (for children 12 months or older) or infant formula.</p> <p>The recommendation of the American Academy of Pediatrics (AAP) is to discontinue the supplement once a child consumes 500 mL (approximately 2 cups) per day of fortified milk or formula.¹</p> <p>Caution! Over consuming vitamin D “supplements”</p>

	can be dangerous to children. Like any other vitamins and medicine, keep vitamin D supplements out of the reach of children.
9. Should I keep giving vitamin D to my child after s/he turns a year?	Vitamin D supplements are not just for breastfed babies! The AAP recommends that children receive a supplement if they do not drink at least 2 cups of vitamin D fortified milk daily. Ask your doctor whether your child should be given vitamin D.
10. What if I don't want to give my baby vitamin D?	<p>Infancy is an important time to build bones and vitamin D is essential for proper bone growth. Talk to your doctor about giving your baby vitamin D drops.</p> <p>Traditionally, babies relied on sun exposure for vitamin D, but this is not the current recommendation. In fact, the AAP also recommends that infants under 6 months of age should not be exposed to direct sunlight.</p>
11. If I am drinking enough milk and getting enough sunshine, wouldn't my breastmilk have enough vitamin D?	Even if you are getting enough vitamin D, your baby may not get enough vitamin D. Your baby still needs vitamin D supplementation. Talk with your doctor about how to get vitamin D supplementation for your baby.
12. What do pediatricians recommend?	<p>According to the AAP, beginning by two months of age, 200 IU of vitamin D should be given in the following situations:</p> <ol style="list-style-type: none"> 1. Exclusively breastfed infants under 1 year of age (no formula), 2. Breastfed infants under 1 year of age, who ingest less than 500 mL per day (approximately 16 oz.) of vitamin D fortified infant formula, 3. Non-breastfed infants under 1 year of age who ingest less than 500 mL per day of vitamin D fortified infant formula, and 4. Children and adolescents who do not get regular sunlight exposure, and do not ingest at least 500 mL per day of vitamin D fortified milk, or do not take a daily multivitamin supplement containing at least 200 IU of Vitamin D.
14. Should we recommend to our breastfeeding clients to give vitamin D	Tell them about the recommendation of the AAP and encourage them to discuss this with their health care provider.

supplements to their infants?	
15. What form does the infant supplement come in and what is its name?	Most supplements for infants are in liquid form. At present there is no single vitamin D supplement. One common supplement is called Tri-Vi-Sol, which contains vitamin A (1500 IU), vitamin D (400 IU) and vitamin C (35 mg). Clients should follow their health care provider's recommendations regarding dosages.
16. What is the State's position on this statement?	The California Department of Health Services supports the AAP recommendation. Whether to supplement is a decision that should be made by the mother upon consultation with her health care provider.