

## Maternal & Infant Nutrition Briefs

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*A research-based newsletter prepared by the University of California for professionals interested in maternal and infant nutrition*



### **Baby-Friendly Hospital Policies Improve Breastfeeding Rates**

Breastfeeding rates in the U.S. lag far behind the target goals of the Healthy People 2010 report. Only 64% of mothers initiate breastfeeding (vs. goal of 75%); 29% are still breastfeeding at 6 months (vs. goal of 50%); and 16% continue to breastfeed at 12 months (vs. goal of 25%). The Baby-Friendly Hospital Initiative, conceived as a strategy to increase breastfeeding rates, outlines 10 steps that hospitals can take to create a supportive environment for breastfeeding. As of July 2001, more than 16,000 sites worldwide—31 of which are in the U.S.—have been designated as “baby-friendly”. This paper examines the impact of Baby-Friendly Hospital policies on breastfeeding rates in an inner-city U.S. hospital serving a poor, immigrant population.

Boston Medical Center (BMC) gradually implemented the Baby-Friendly Initiative over the period from 1995 to 1999. In the early stages, pediatricians and nurses began creating a supportive environment by securing special breastfeeding rooms in clinics and on campus. They posted the “10 Steps to Successful Breastfeeding” in different languages, along with artwork depicting breastfeeding mothers and infants. A task force conducted monthly breastfeeding grand rounds and a 5-day comprehensive course for nurses. Other hospital staff (i.e., receptionists, housekeeping staff, and administrators) attended sessions on the benefits of breastfeeding and the Baby-Friendly Hospital initiative. By far, the biggest hurdle was convincing senior management to pay fair market value for all infant formula provided at the hospital. Initially, the hospital had been paying for formula, but mid-stream during implementation, an infant formula manufacturer entered into a three-year agreement to provide \$72,000 worth of free formula and products to the hospital. However, that figure far exceeded the actual needs of the hospital for formula (\$20,000). Finally, administrators decided that paying the fair market price for formula was “the right thing to do”.

The effect of changing hospital policies on breastfeeding initiation rates was examined before (in 1995), during (in 1998), and after full-implementation (in 1999).

Research assistants conducted a chart review of 200 randomly selected records to glean data on infant feeding practices in the hospital and demographic factors. Cases were excluded for the following reasons: HIV/AIDS, maternal substance abuse, adoption, incarceration, hepatitis C, and infant in neonatal intensive care. Over the three-year period, breastfeeding initiation rates increased from 58% in 1995 to 77.5% in 1998 and to 86.5% in 1999 ( $p < 0.001$ ). There was an increase in the numbers of white immigrant mothers delivering at the hospital that may have influenced these results. However, even within a single ethnic group, breastfeeding rates increased. For example, among African-American mothers, initiation rates increased from 34% in 1995, to 64% in 1998 and 74% in 1999 ( $p < 0.001$ ). Unfortunately, no data are available from comparable hospitals that did not implement the Baby-Friendly Initiative to sort out hospital vs. any potential community-wide influences. Nevertheless, the results are encouraging. The description of their strategies may be useful to health providers who want to implement the Baby-Friendly Hospital Initiative in other settings.

**Source:** Philipp BL, A Merewood, LW Miller, N Chawla, MM Murphy-Smith, JS Gomes, S Cimo, JT Cook. Baby-Friendly Hospital Initiative improves breastfeeding initiation rates in a U.S. hospital setting. *Pediatrics* 2001; 108: 677-681.

### **AAP Statement on Drugs and Human Milk**

The American Academy of Pediatrics (AAP) has recently published its latest revision of a statement on the transfer of drugs and chemicals into human milk. The statement includes seven tables listing the following: 1) cytotoxic drugs that may interfere with cellular metabolism of the nursing infant; 2) drugs of abuse for which adverse effects on nursing infants have been reported; 3) radioactive drugs that require temporary cessation of nursing; 4) drugs for which effects on nursing infants are unknown but may be of concern; 5) drugs that have been associated with effects on some nursing infants and should be used with caution; 6) maternal medication usually compatible with nursing; and 7) food and environmental agents: effects on breastfeeding.

With a list of nearly 400 references, this article should enable health providers to provide the most current advice to breastfeeding mothers about medications. AAP cautions readers that a drug or agent omitted from the tables does not imply safety for use in breastfeeding women. Instead, an omission means that not enough information was available to classify the item into one of their seven categories. Notably, among the items not listed are many herbal remedies that mothers may use as "natural alternatives".

The article emphasizes that a mother's need for medication does not necessarily mean she should stop nursing her baby. To support breastfeeding, the AAP recommends that physicians should consider if drug therapy is really needed, whether safer alternative drugs are available, and how mothers might take their medication after nursing to minimize infant exposure. In some cases, it may be necessary to measure blood levels of the drug in the infant to determine if a risk exists.

Some changes that may be of interest relate to smoking, antidepressants, and silicon implants. Nicotine, previously listed as contraindicated during breastfeeding, was removed from all lists. While nicotine has been detected in breast milk and is associated with slower infant weight gain, one study found fewer respiratory problems among breastfed babies of smokers, compared to formula-fed infants of smokers. AAP felt that, rather than discouraging women from breastfeeding, the emphasis should be on discouraging smoking. Mothers should also be aware that anti-anxiety drugs and anti-depressants fall under the category of "drugs for which an effect on nursing is unknown but may be of concern". Finally, silicon breast implants were not judged to pose a risk to breastfed infants. AAP recommends that health

providers check a Food and Drug Administration website to find the latest news on safety of drugs and other agents (<http://www.fda.gov/medwatch/index.html>).

**Source:** American Academy of Pediatrics, Committee on Drugs. The transfer of drugs and other chemicals into human milk. *Pediatrics*. 2001; 108(3): 776-788.

### **Feeding Vegan Infants**

Both the American Dietetic Association and the American Academy of Pediatrics (AAP) have stated that well-planned vegan diets can meet the nutritional needs and support normal growth in infants and children. An recent article has identified key issues and makes the following points on feeding vegan infants:

- Healthy infants who receive adequate amounts of breast milk from vegan mothers or soy-based formula should grow normally. If vegan mothers follow a very restrictive diet, milk production may be low and result in poor infant growth.
- Breastfed vegan infants should be given supplements of B12 (0.4-0.5 µg/day) if their mothers do not take B12 supplements or use B12- fortified foods.
- Vitamin D (200 IU or 5 µg) may also be needed, especially for infants who are not exposed to sunlight or living at northern latitudes or who have dark skin.
- More research is needed on whether or not to give zinc supplements to older vegan infants. Zinc levels naturally decline in breast milk over time, so that other foods must provide this nutrient. The usual sources of zinc for vegan infants (legumes, whole grains) also contain phytate, which limits absorption of zinc. Using fermented soy products and leavened bread can improve bioavailability of zinc in the diet.
- Between 4-6 months, breastfed vegan infants should be given an additional source of iron (equivalent to 1 mg/kg/day). Iron-fortified cereals are a good first food.
- Vegan parents should give their infants either breast milk or iron-fortified soy formula throughout the first year of life. If the child is growing normally, he or she may transition to commercial, fortified full-fat soy milk at one year. However, parents should continue to offer breast milk or soy-based formula as a supplementary beverage until the child reaches 24 months or drinks at least 24 ounces of soy milk daily.
- Finally, vegan infants need plenty of energy for growth. Mashed avocado, beans, or tofu should be encouraged. Additional fat, in the form of vegetable oil or margarine, should be used in preparing baby foods.

The main point is that vegan diets appear to support normal growth and development of infants, if those diets are well-planned and appropriate supplements are taken. Some of the recommendations may not apply to infants with special needs. For example, the AAP does not recommend soy-based formula for preterm infants, who weigh less than 1800 gm. In cases of more restrictive vegan diets (i.e., macrobiotic diets), health providers need to watch for serious nutritional deficiencies that may occur in breastfed and weaned macrobiotic children.

**Source:** Mangels AR, Messina V. Considerations in planning vegan diets: infants. *J Am Diet*

Assoc. 101: 670-677.

### **Mild Carbohydrate Intolerance Affects Pregnancy Outcomes**

Gestational diabetes is typically diagnosed on the basis of two or more abnormally high blood glucose values during an Oral Glucose Tolerance Test (OGTT). If untreated, gestational diabetes may result in complications and poor pregnancy outcomes, such as infant hypoglycemia and abnormal fetal growth. Milder forms of carbohydrate intolerance (i.e., one abnormal value) may also increase the risk of adverse outcomes. A recent study from Denmark provides additional evidence that mild forms of carbohydrate intolerance increase the risk of emergency cesarean sections, macrosomia (large body size for gestational age), and other complications.

The 2904 pregnant women in the study had risk factors for gestational diabetes (GDM) but did not meet the criteria for diagnosis of GDM. Therefore, all women received the usual prenatal care. A high fasting blood glucose value increased the odds of delivering a large-for-gestational-age baby by 1.49 times (C.I. 1.19-1.88,  $p < 0.001$ ). An abnormal 2 hr. value during the OGTT increased the risk of delivering a large baby by 1.22 times (C.I. 1.1-1.35,  $p < 0.0001$ ). Risk of assisted delivery with forceps, emergency cesarean section, and shoulder dystocia (damage to the infant's shoulder during delivery) was also significantly increased when the 2 hr. value was abnormal. The findings suggest that women with mild carbohydrate intolerance are at risk for poor outcomes but may be missed by current screening procedures. Currently underway, the Hyperglycemia and Adverse Pregnancy Outcomes study is a large, multicenter, worldwide study that will hopefully bring us closer to establishing a better cut point for detecting and treating carbohydrate intolerance during pregnancy.

**Source:** Jensen DM, Damm P, Sorensen B, Molsted-Pedersen L, Westergaard JG, Klebe J, Beck-Nielsen H. Clinical impact of mild carbohydrate intolerance in pregnancy: a study of 2904 nondiabetic Danish women with risk factors for gestational diabetes mellitus. *Am J Obstet Gynecol* 2001; 185:413-19.

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