

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



How Much Money Does Breast-feeding Save?

Breast-feeding rates among Hmong immigrant women are very low (< 12%), despite the fact that many breast-fed their infants in Laos. While others have estimated cost-savings that increased breast-feeding might generate in developing countries, few have looked at the savings in developed countries. The purpose of this study was to estimate potential cost savings for social service programs associated with increased breast-feeding among low-income Hmong women.

The analysis used 1993 data, including health care utilization rates, Medi-Cal reimbursement figures, costs of food vouchers from the Women, Infant, and Child (WIC) Nutrition program, and AFDC and Food Stamp payments. The authors systematically examined savings to Medi-Cal, AFDC, Food Stamps, and WIC generated by increased breast-feeding rates, based on the assumptions that 1) exclusive breast-feeding for 6 months is an achievable goal and 2) few Hmong women use contraceptives. By lengthening their birth intervals from 18 to 21 months, breast-feeding mothers would have 4.3 babies vs. 5.0 babies born to formula-feeding women. Gastrointestinal illness and ear infections could be reduced by 50% and 15%, respectively if full breast-feeding for 6 months were to occur. Savings were calculated over a 7.5 year period with discount rates of 0-4%, since money available in the future is assumed to be worth less than money available now.

The total projected savings for the 7.5 year period ranged from \$3,442 to \$ 4,944 per family (at a 4% discount rate) or \$4,475 to \$6,060 (0% discount rate). The impact of breast-feeding on cost savings was related more to reduced fertility (i.e., lower AFDC payments) than to morbidity (i.e., lower Medi-Cal costs for treating infections). When the infant formula rebate is taken into account, the cost to WIC of providing formula and food to the formula-feeding pair is only slightly more than the food costs of supporting the breast-feeding mother and baby. The analysis also reveals that the most costly option for WIC--and the most economically advantageous for the mother--is partial breast-feeding. Thus, changing the

definition of breast-feeding from once a day to at least one third of the infant's milk feedings would make economic, as well as biologic sense.

Although this article was just published in September, the calculations will need to be re-worked as the new Welfare Bill takes effect. With the shift away from government to individual responsibility, the costs associated with formula feeding could be increasingly borne by the low-income family. When families cannot afford these costs, the cost savings generated by breast-feeding may be even greater than those estimated in this article.

Source: Reeves-Tuttle, C. and K.G. Dewey (1996) Potential cost savings for Medi-Cal, AFDC, Food Stamps, and WIC programs associated with increasing breast-feeding among low-income Hmong women in California. *JADA* 96: 885-890.

Herbal Teas Linked to Liver Damage in Hispanic Infants

In Mexico, many parents use herbal teas (yerba buena) to treat colic and other minor ailments in their infants. Although most of these teas are not toxic, some may contain pennyroyal oil which can result in serious complications, including hepatic and renal failure, seizures, gastrointestinal hemorrhage and respiratory problems. The consequences of pennyroyal poisoning were recently observed in two Hispanic infants admitted to the emergency room of the UC Davis Medical Center in Sacramento, after drinking between 90 to 120 ml of herbal tea. In one case, the infant had taken herbal tea previously without becoming ill. However, on this occasion, the child also had a viral infection. In both infants, serum samples contained a metabolite of pennyroyal oil, menthofuran which is known to damage hepatic and pulmonary cells. The authors stress the importance of early recognition of the symptoms, since treatment with N-acetylcysteine may improve outcomes. Nutritionists and other health providers should alert parents to the dangers of using home-grown mint teas, because distinguishing the safe plants from the toxic ones can be difficult.

Source: Bakerink, J.A., S.M. Gospe, R.J. Dimand, and M.W. Eldridge. (1996) Multiple organ failure after ingestion of pennyroyal oil from herbal tea in two infants. *Pediatrics* 98 (5): 944-947.

Critical Review of the WIC Nutrition Risk Criteria

The indicators and cutoffs used to identify nutrition risk and determine eligibility for the Women, Infants, and Child Nutrition (WIC) Program varies from state to state, since the federal government has not set uniform criteria. In 1993, the US Department of Agriculture (USDA) asked the Institute of Medicine (IOM) to examine the scientific basis for the existing criteria and make recommendations for changes and future research. Excerpts from the final report were published in the September issue of the *Journal of the American Dietetics Association*.

In carrying out the task, the IOM committee first obtained a complete list of criteria used by the states in 1992. For each criterion, the committee examined the following issues: 1) What is the scientific basis for using the criterion as an indicator of risk?; 2) Does the criterion help in identifying those who will benefit from the WIC program?; and 3) What cutoffs should be used?

While the committee found a majority of the current criteria to be scientifically valid, use of generous cutoffs or loosely defined conditions means the program selects many who will

benefit nutritionally from WIC but also many who will not (i.e., high sensitivity but low yield of benefit). Some "loosely defined conditions" include endocrine disorders, renal disease, chronic or recurrent infections, food allergies, and certain genetic or congenital disorders. Use of generous cutoffs or loosely defined conditions could mean that services are denied to some who are actually at higher nutritional risk (due to other conditions) but do not meet these criteria. The committee also recommended that the WIC priority system be re-examined. In general, this system prioritizes service to certain categories of clients, such as most pregnant or breast-feeding women and infants above service to children and nonbreast-feeding women. When program funding is limited, lower priority clients may not receive WIC services.

For each type of nutritional risk (i.e., anthropometric, biochemical or medical, dietary), the report makes specific recommendations. For example, while most WIC anthropometric indicators predict risk or benefit from the program, the committee found no obvious justification for using symmetric cutoffs (at the 5th or 95th percentile). The committee was particularly concerned about the use of generous cutoffs to define anemia. They noted that research is needed to determine whether pregnant or lactating women using alcohol, cigarettes, or illegal drugs benefit from WIC services but recommended keeping these criteria on an interim basis. The report also calls for a development of a list of drugs for which there are clear nutrient-drug interactions or potential for misuse, as well as a definition of "recurrent" or "chronic" infections. The committee found dietary recalls or food frequency questionnaires to perform poorly in selecting those with truly inadequate diets. Instead, they suggest using measures of food insecurity to find those who would benefit from WIC. However, at present scientific evidence is lacking to choose appropriate cutoffs for food insecurity scales. Also, cultural adaptations are needed to apply these and other dietary assessment tools to WIC's diverse populations.

The report also recommends discontinuing use of the following eligibility criteria: maternal short stature, abnormal postpartum weight change, infants large for gestational age, food intolerance (except lactose), high age at conception, previous placental abnormalities, history of postterm delivery, high parity, preeclampsia and eclampsia, prematurity (children 1-5 yrs. of age), and inadequate diet. On the other hand, they propose increasing the priority of certain predisposing risks such as depression for women and maternal depression for infants and children, as well as homelessness.

If fully implemented, these recommendations could result in substantial changes in the clientele served by the WIC program but hopefully would improve the targeting of the program, in terms of both risk and benefit.

Source: Committee on Scientific Evaluation of WIC Nutrition Risk Criteria, Food and Nutrition Board, Institute of Medicine, National Academy of Sciences (1996) JADA 96: 925-930.

What Do Pregnant Teens Want To Know About Nutrition?

Most nutrition educators recognize the need to use different approaches in working with pregnant teens compared to adults. Yet, most nutrition materials given to teens are the same ones given to adults. Recently, a study was conducted in Tennessee to find out what pregnant teens think they need to know about nutrition, what they want to learn, and how they want to learn it.

The study involved a series of focus groups conducted among pregnant and postpartum teens, designed to include diversity in terms of white/African-American, young/old,

urban/rural teens. To stimulate discussion, the researchers showed the girls clips from videos and several pamphlets or magazines developed for pregnant teens or adults. Complete transcripts were made of the discussions. The themes were organized into major categories (media or message).

The teens expressed a clear preference for videos over print materials. Instead of a lecture-type presentation, the teens preferred to see action on the video. Listening to advice from a "talking baby" or from a pregnant teen with whom they could identify was also acceptable. They also liked to see pictures of real foods as they are eaten, appetizing foods, and multiple food choices. In particular, they were interested in pictures of the developing fetus.

The teens in this study were aware they were experiencing a potentially high risk pregnancy but wanted very much to have a healthy baby. They specifically wanted to know why certain nutrition practices are recommended for the baby's health. Other than calcium, they were unaware of direct links between their nutrition and the baby's health. The teens were very interested in the topic of food but discussed nutrients only to a limited extent. They typically lacked information on planning their meals and snacks to satisfy their increased appetites. The girls commonly expressed concern about losing weight after pregnancy. They also frequently commented on the lack of effective remedies for nausea and the difficulty of staying in school while feeling sick.

The focus group discussion can be a useful tool prior to developing a nutritional message for a particular audience. Based on the findings of this study, nutrition educators who work with pregnant teens should strive to deliver concrete messages about "foods " and use appropriate teen role models in action-oriented formats.

Source: Skinner, J.D., B.R. Carruth, J.M. Ezell, and A. Shaw (1996) How and what do pregnant adolescents want to learn about nutrition? *Journal of Nutrition Education* 28: 266-271.

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