



POSITION PAPER

Nutrition Division, Bureau of Family Health and Nutrition
Massachusetts Department of Public Health

The Introduction of Solid Foods in Infancy

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Introduction

The Nutrition Division of the Bureau of Family Health and Nutrition, Massachusetts Department of Public Health, offers and supports an array of health and nutrition programs serving persons of all ages throughout the Commonwealth. The WIC Nutrition Program serves women, infants and children who have or who are at risk of developing nutrition-related health problems. The program strives to improve maternal and child health by providing nutrition education and counseling. Its primary goals are to help WIC participants establish dietary patterns that promote life-long healthy lifestyles, provide the tools by which participants apply the nutrition knowledge gained from counseling and education to make dietary changes, and provide participants with a reliable source of nutritious supplemental foods.

Background

Recent recommendations have been issued regarding the following four issues:

1. Importance of exclusive breastfeeding
2. Timing of introducing complementary foods to infants
3. Order of introducing foods
4. Introduction of potentially allergenic foods

Exclusive breastfeeding and the timing of introducing complementary foods to infants:

In 2012, the American Academy of Pediatrics (AAP) issued a policy statement on breastfeeding and the introduction of solid foods. As stated in "Breastfeeding and the Use of Human Milk," "The AAP reaffirms its recommendation of exclusive breastfeeding for about 6 months, followed by continued breastfeeding as complementary foods are introduced, with continuation of breastfeeding for 1 year or longer as mutually desired by mother and infant, a recommendation concurred to by the World Health Organization and the Institute of Medicine." (1)

In its 2011 publication, *Bright Futures Nutrition 3rd Edition*, the AAP states: "Exclusive breastfeeding (only breast milk and prescribed medications offered to the infant) is recommended for a minimum of 4 months, but preferably for 6 months." In that same publication, the AAP recommended introducing solids between 4 and 6 months for all infants, both breastfed and those receiving formula, as long as the infant is developmentally ready. (2)

In 2012, the Academy of Nutrition and Dietetics stated: "Solid foods should not be introduced before 4 to 6 months of age. Delaying the introduction of solid foods beyond 4 to 6 months of age does not appear to provide significant protective effect from developing food allergies. (3)

In its 2012 guide for parents on food allergies, the National Institute of Allergy and Infectious Diseases echoed these recommendations: “There is no conclusive evidence to suggest that you should delay the introduction of solid foods beyond 4 to 6 months of age.” (4)

Order of introducing foods

In *Bright Futures* (Third Edition, 2008), the AAP states: “Evidence for introducing complementary foods in a specific sequence or at any specific rate is not available.” It goes on to say, “The order in which solid foods are introduced is not critical as long as essential nutrients that complement breast milk or formula are provided.” (5)

In *Bright Futures Nutrition*, the AAP notes, “Iron-fortified, single-grain infant cereals and pureed meats are good choices for first foods, especially for the breast-fed infant, because they provide iron, zinc, protein, and other nutrients. These foods are least likely to cause an allergic reaction.” (2)

The Academy of Nutrition and Dietetics states: “The order in which you introduce solid foods doesn’t matter for most babies. The traditional progression has been single-grain cereals followed by vegetables, fruits and meats. While there is nothing wrong with this pattern, pureed meat or poultry actually may be the best first food to provide sources of iron and zinc. (3)

Introduction of potentially allergenic foods

In *Bright Futures Nutrition*, the AAP states the following regarding the development of allergies (which first appeared in an AAP Clinical Report in 2008 [6]): “Delaying the introduction of solid foods until 4 to 6 months of age is appropriate; however, there is no evidence that delaying beyond this period provides a protective effect on the development of atopic disease regardless of whether the infant is breastfed or fed cow’s milk protein formula. This includes delaying the introduction of foods that are considered to be highly allergenic foods, such as fish, eggs, and foods containing peanut protein.” (2)

In 2010, an expert panel convened by the National Institute of Allergy and Infectious Diseases (NIAID) stated in its guidelines that “the introduction of solid foods should *not* be delayed beyond 4-6 months of age. Potentially allergenic foods may be introduced at this time as well.” Their rationale stated: “Insufficient evidence exists for delaying introduction of solid foods, including potentially allergenic foods, beyond 4 to 6 months of age, even in infants at risk...of developing allergic disease.” (7) The Adverse Reactions to Foods Committee advises that “...complementary foods may include the highly allergenic foods once a few other complementary foods are tolerated first.” (8) The WIC Nutrition Risk Assessment Criteria released in July 2012 reflect this recommendation (9), and the NIAID reiterated this in their 2012 guidance to parents (4). A scientific review of studies published in 2012 further supports this conclusion, and proposed a “window” approach whereby nearly all foods are introduced between 4 and 6 months of age. (10)

In a 2013 publication, the Adverse Reactions to Foods Committee of the American Academy of Allergy, Asthma & Immunology wrote: “No current evidence suggests that the delay of introduction of solid foods beyond 4 to 6 months of age will prevent allergic disease. Delayed introduction of solid foods, especially the highly allergenic foods, may increase the risk of food allergy or eczema.” They noted that the increased incidence and prevalence of food allergy and allergic diseases over the past decade despite previous AAP recommendations to delay the introduction of such foods until after 1 year led to a re-evaluation of the previous guidelines. (8)

Implications for the Massachusetts WIC Nutrition Program

The Massachusetts WIC Program bases its policies on current recommendations from the AAP, input from a member of the Massachusetts Chapter of the AAP, its Medical Advisory Board, leading health care providers, and WIC nutrition managers. WIC recognizes that the AAP statements are somewhat contradictory, advocating 1) exclusive breastfeeding for about 6 months, 2) exclusive breastfeeding for 4 to 6 months, and 3) the introduction of complementary foods between 4 and 6 months. In considering the evidence, the Massachusetts WIC Program's position on this topic is as follows:

- WIC continues to support exclusive breastfeeding for about 6 months, and to continue to breastfeed to at least 12 months of age or longer, if possible.
- WIC's recommendations on the introduction of complementary foods are informed by general guidelines to be between 4 and 6 months and will be presented to each family based on the nutrition staff's individualized assessment of breastfeeding status and the infant's medical history, developmental readiness and apparent interest in food.
- The recommendations recognize a goal of exclusive breastfeeding for about 6 months for most infants, while at the same time consider the recent evidence that suggests a protective effect of introducing solids on allergy prevention. Some experts suggest that it's better to introduce solids during breastfeeding because of breast milk's immunoprotective properties.
- In general, the small quantities of solids introduced between 4 and 6 months are indeed considered complementary, and should not significantly impact breastfeeding or diminish the mother's supply of breast milk.
- Delaying the introduction of solids beyond 6 months of age may result in feeding difficulties, growth deficits, and inadequate nutrient intake. (7)

Specific Guidance for WIC Nutrition Staff

- A. WIC nutritionists provide an individualized and comprehensive assessment of the infant's nutritional intake, including screening for inappropriate feeding practices (i.e., introduction of solids before 4 months, adding solids to bottles). (A recent study of mothers included in the national Infant Feeding Practices Study II between 2005 and 2007 found that more than 40% of mothers fed their infants solids before the age of 4 months [11].)
- B. WIC nutritionists provide anticipatory guidance based on breastfeeding status, and the infant's medical history, developmental readiness and apparent interest in food to help parents and caregivers successfully and appropriately introduce complementary foods to infants according to AAP recommendations.
 - Continue to recommend exclusive breastfeeding as the ideal infant feeding choice unless medically contraindicated.
 - If an infant is exclusively breastfeeding, recommend continuing to do so for a minimum of 4 months but preferably closer to 6 months. Solid foods should not replace breastfeeding but complement it as the infant's main source of nutrients throughout the first year as babies discover new tastes and textures.

- C. Complementary foods can be introduced between 4 and 6 months if the infant is developmentally ready (i.e., demonstrates the ability to sit up without support, holds their head straight, and opens their mouth for food).
- Single complementary foods should be introduced one at a time, waiting 3 to 5 days before introducing another new food.
 - Iron-fortified infant cereal and pureed iron-rich meats (i.e., beef, turkey, pork and chicken) are good complementary foods to introduce early on, but there is no particular order in which to introduce foods to the infant.
 - There is a lack of evidence that delaying the introduction of solids beyond 6 months of age, including highly allergenic foods, prevents the development of food allergies. In fact, some research indicates that potential allergens should be introduced when introducing solids to reduce the risk of allergy. They should only be introduced once several other complementary foods have been introduced and tolerated. Care should be taken that these foods (such as cooked fish, cooked eggs, and peanut products), do not present a choking hazard.
 - Avoid other food items that can cause choking, including nuts; popcorn; hot dogs; grapes; and hard, raw veggies.
 - Cow's milk should not be given to infants before age 1 due to concerns of iron-deficiency anemia.
 - Honey should not be given to infants less than 1 year because of the risk of botulism.
 - Recommendations on introducing potential allergens to infants with a positive family history of allergies should be done in consultation with the pediatrician.

Educational handouts for WIC parents and caregivers are being modified to reflect the new recommendations, and will help to facilitate discussion with WIC participants regarding current feeding attitudes, beliefs and practices.

References:

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