



Complete Summary

GUIDELINE TITLE

Effects of early nutritional interventions on the development of atopic disease in infants and children: the role of maternal dietary restriction, breastfeeding, timing of introduction of complementary foods, and hydrolyzed formulas.

BIBLIOGRAPHIC SOURCE(S)

Greer FR, Sicherer SH, Burks AW, American Academy of Pediatrics Committee on Nutrition, American Academy of Pediatrics Section on Allergy and Immunology. Effects of early nutritional interventions on the development of atopic disease in infants and children: the role of maternal dietary restriction, breastfeeding, timing of introduction of complementary foods, and hydrolyzed formulas. *Pediatrics* 2008 Jan;121(1):183-91. [63 references] [PubMed](#)

GUIDELINE STATUS

This is the current release of the guideline.

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SCOPE

DISEASE/CONDITION(S)

Atopic disease:

- Atopic dermatitis
- Asthma

- Food allergies

GUIDELINE CATEGORY

Prevention

CLINICAL SPECIALTY

Allergy and Immunology
Family Practice
Nutrition
Obstetrics and Gynecology
Pediatrics

INTENDED USERS

Advanced Practice Nurses
Dietitians
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To review the nutritional options during pregnancy, lactation, and the first year of life that may affect the development of atopic disease (atopic dermatitis, asthma, food allergy) in early life
- To replace an earlier policy statement from the American Academy of Pediatrics that addressed the use of hypoallergenic infant formulas and included provisional recommendations for dietary management for the prevention of atopic disease

TARGET POPULATION

- Pregnant women and lactating mothers
- Infants and children

Note: This report is not directed at the treatment of atopic disease once an infant or child has developed specific atopic symptoms.

INTERVENTIONS AND PRACTICES CONSIDERED

1. Exclusive breastfeeding for at least 3-4 months
2. Feeding infants with extensive or partially hydrolyzed formulas

Note: Use of soy based infant formulas, delaying solid foods beyond 4-6 months of age, maternal dietary restriction, and dietary interventions after 4-6 months of age were considered but not recommended.

MAJOR OUTCOMES CONSIDERED

Incidence of atopic diseases (asthma, atopic dermatitis, food allergies) in infants and children

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Databases for this report included PubMed and Google Scholar. The time frame of the search was 1980 through June of 2007. The search was for clinical trials and review articles on the prevention of atopic disease in infants and children. Search terms included *atopic disease, atopic dermatitis, asthma, food allergy, lactation, pregnancy, breast milk, breast feeding, hydrolyzed formula, solid foods, complementary foods* . There were no specific inclusion or exclusion criteria, though randomized controlled trials were preferred over cohort studies in making the summary statement of the report.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review
Review of Published Meta-Analyses

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Not stated

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not applicable

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

It is evident that inadequate study design and/or a paucity of data currently limit the ability to draw firm conclusions about certain aspects of atopy prevention through dietary interventions. In some circumstances in which there are insufficient studies (pregnancy and lactation avoidance diets, timing of introduction of specific complementary foods), the lack of proven efficacy does not indicate that the approach is disproved. Rather, more studies would be needed to clarify whether there is a positive or negative effect on atopy outcomes. The following statements summarize the current evidence within the context of these limitations.

1. At the present time, there is lack of evidence that maternal dietary restrictions during pregnancy play a significant role in the prevention of atopic disease in infants. Similarly, antigen avoidance during lactation does not prevent atopic disease, with the possible exception of atopic eczema, although more data are needed to substantiate this conclusion.
2. For infants at high risk of developing atopic disease, there is evidence that exclusive breastfeeding for at least 4 months compared with feeding intact cow milk protein formula decreases the cumulative incidence of atopic dermatitis and cow milk allergy in the first 2 years of life.
3. There is evidence that exclusive breastfeeding for at least 3 months protects against wheezing in early life. However, in infants at risk of developing atopic disease, the current evidence that exclusive breastfeeding protects against allergic asthma occurring beyond 6 years of age is not convincing.
4. In studies of infants at high risk of developing atopic disease who are not breastfed exclusively for 4 to 6 months or are formula fed, there is modest evidence that atopic dermatitis may be delayed or prevented by the use of extensively or partially hydrolyzed formulas, compared with cow milk formula, in early childhood. Comparative studies of the various hydrolyzed formulas have also indicated that not all formulas have the same protective benefit. Extensively hydrolyzed formulas may be more effective than partially hydrolyzed in the prevention of atopic disease. In addition, more research is needed to determine whether these benefits extend into late childhood and adolescence. The higher cost of the hydrolyzed formulas must be considered

- in any decision-making process for their use. To date, the use of amino acid-based formulas for atopy prevention has not been studied.
5. There is no convincing evidence for the use of soy-based infant formula for the purpose of allergy prevention.
 6. Although solid foods should not be introduced before 4 to 6 months of age, there is no current convincing evidence that delaying their introduction beyond this period has a significant protective effect on the development of atopic disease regardless of whether infants are fed cow milk protein formula or human milk. This includes delaying the introduction of foods that are considered to be highly allergic, such as fish, eggs, and foods containing peanut protein.
 7. For infants after 4 to 6 months of age, there are insufficient data to support a protective effect of any dietary intervention for the development of atopic disease.
 8. Additional studies are needed to document the long-term effect of dietary interventions in infancy to prevent atopic disease, especially in children older than 4 years and in adults.
 9. This document describes means to prevent or delay atopic diseases through dietary changes. For a child who has developed an atopic disease that may be precipitated or exacerbated by ingested proteins (via human milk, infant formula, or specific complementary foods), treatment may require specific identification and restriction of causal food proteins. This topic was not reviewed in this document.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting the recommendations is not specifically stated.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate early nutritional intervention to prevent or delay the onset of atopic disease in at-risk infants

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

The guidance in this report does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2008 Jan

GUIDELINE DEVELOPER(S)

American Academy of Pediatrics - Medical Specialty Society

SOURCE(S) OF FUNDING

American Academy of Pediatrics

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

Electronic copies: Available from the [American Academy of Pediatrics \(AAP\) Policy Web site](#).

Print copies: Available from American Academy of Pediatrics, 141 Northwest Point Blvd., P.O. Box 927, Elk Grove Village, IL 60009-0927.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI Institute on April 7, 2009. The information was verified by the guideline developer on April 23, 2009.

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Date Modified: 5/18/2009

