practice. Egg allergy was defined as a clear history of immunoglobulin E (IgE)-mediated allergic reaction to egg ingestion or an egg-specific IgE level of $>$2 kU/L without known tolerance.

**METHODS.** Information was collected and included demographics, symptoms at egg-allergy diagnosis, presence of other atopic diseases and food allergies, dietary history, age/symptoms with egg exposure, egg skin-prick tests, egg-specific IgE, oral food challenge results, and outcome of egg and other food allergies. Three definitions were used to define oral tolerance to egg in all 881 subjects: definition 1 included those children who passed a formal oral food challenge or had successful home introduction of egg; definition 2 included children who met definition 1 and had an egg-specific IgE level of $<$2 kU/L and no reaction within the previous year; and definition 3 included children who met definition 2 but had an egg-specific IgE level of $<$6 kU/L.

**RESULTS.** Of the 881 subjects, the median age at the initial visit was 14 months, and median follow-up was 4.9 years with 68% male subjects. Most (93%) had at least 1 other food allergy, 54% had asthma, 55% had allergic rhinitis, and 81% had eczema. Of 881 subjects, 375 (43%) had a documented history of allergic reaction to rhinitis, and 81% had eczema. Of 881 subjects, 375 (43%) had a documented history of allergic reaction to rhinitis, and 81% had eczema. Of 881 subjects, 375 (43%) had a documented history of allergic reaction to rhinitis, and 81% had eczema. Of 881 subjects, 375 (43%) had a documented history of allergic reaction to rhinitis, and 81% had eczema.

**STUDY POPULATION.** The primary study group comprised children evaluated and diagnosed as having peanut allergy in the Duke University pediatric allergy and immunology clinic in North Carolina between July 2000 and April 2006.

**METHODS.** This was a retrospective chart review with some follow-up telephone calls to determine missing data. Food-allergy diagnoses were based on clinical and laboratory data or oral food-challenge results. Results were compared with those previously published from a referral practice at Johns Hopkins Hospital in Baltimore, Maryland, from a decade earlier.

**RESULTS.** One hundred forty patients (70 born between 1988 and 1999 and 70 born between 2000 and 2005) were included in the study. Eighty-three percent reacted on their first known exposure to peanut. The median age of first peanut exposure was 14 months, and median age at first reaction was 18 months. This contrasts to the study at Johns Hopkins Hospital between 1995 and 1997, in which the median age at first exposure was 22 months and median age at first reaction was at 24 months. Within the Duke University patient group, those born before 2000 were first exposed to peanuts at a median age of 19 months and reacted at a median age of 21 months, compared with first exposure at 12 months and first reaction at 14 months for those born in or after 2000. Most (68%) patients demonstrated sensitization or clinical allergy to other foods (53% to eggs, 26% to cow’s milk, 20% to tree nuts, 11% to fish, 9% to shellfish, 7% to soy, 6% to wheat, and 6% to sesame seeds).

**CONCLUSIONS.** This study supports the general idea that most children with egg allergy will eventually outgrow their allergy, but at an older age than previously implicated. Egg-specific IgE levels are predictive of tolerance development, and the presence of other atopic disease delays the process.

**REVIEWER COMMENTS.** This study provides the largest comprehensive natural-history evaluation of children with egg allergy. The work done by this group serves to highlight the importance of specific IgE measurements in children with egg allergy and is very useful for our overall understanding of the delayed development of tolerance. This information is very helpful for anticipatory guidance and disease management of children with egg allergy.

Matthew C. Bell, MD
Stacie M. Jones, MD
Little Rock, AR

**Clinical Characteristics of Peanut-Allergic Children: Recent Changes**

**PURPOSE OF THE STUDY.** To determine if patients seen in a referral clinic are experiencing initial allergic reactions to peanuts earlier, compared with a similar population profiled at a different medical center 10 years earlier.

**STUDY POPULATION.** The primary study group comprised children evaluated and diagnosed as having peanut allergy in the Duke University pediatric allergy and immunology clinic in North Carolina between July 2000 and April 2006.

**METHODS.** This was a retrospective chart review with some follow-up telephone calls to determine missing data. Food-allergy diagnoses were based on clinical and laboratory data or oral food-challenge results. Results were compared with those previously published from a referral practice at Johns Hopkins Hospital in Baltimore, Maryland, from a decade earlier.

**RESULTS.** One hundred forty patients (70 born between 1988 and 1999 and 70 born between 2000 and 2005) were included in the study. Eighty-three percent reacted on their first known exposure to peanut. The median age of first peanut exposure was 14 months, and median age at first reaction was 18 months. This contrasts to the study at Johns Hopkins Hospital between 1995 and 1997, in which the median age at first exposure was 22 months and median age at first reaction was at 24 months. Within the Duke University patient group, those born before 2000 were first exposed to peanuts at a median age of 19 months and reacted at a median age of 21 months, compared with first exposure at 12 months and first reaction at 14 months for those born in or after 2000. Most (68%) patients demonstrated sensitization or clinical allergy to other foods (53% to eggs, 26% to cow’s milk, 20% to tree nuts, 11% to fish, 9% to shellfish, 7% to soy, 6% to wheat, and 6% to sesame seeds).
CONCLUSIONS. The ages of first peanut exposure and reaction have declined among peanut-allergic children seen in a referral clinic. The decline in the age of first peanut reaction seems to be attributable to earlier exposure.

REVIEWER COMMENTS. Assuming there is not a referral bias driving these results between the 2 sites or within the Duke University site over time, there are 2 ways to interpret these data: either peanut-allergic reactions are occurring earlier because we are feeding peanut earlier, or peanut reactions will occur in those disposed to it whenever they are fed it, whether at age 1 or 2 years. I am going to argue for the latter explanation on the basis of there being no difference in the percentage who reacted at first exposure or in the time between first exposure and first reaction. We have much more to learn regarding the influence of timing of feeding an allergenic food such as peanut; studies on this unresolved issue are underway. Many factors may play a role, but it is intriguing that, counter to what is implied in this study (that early exposure may be bad and related to an apparent rise in peanut allergy), peanut allergy is uncommon in countries that feed peanut earlier (eg, Israel). Other important messages in this study are that (1) sesame allergy is prominent, and (2) if you see egg or milk allergy, consider the possibility that peanut allergy is lurking.

Scott H. Sicherer, MD, FAAP
New York, NY

Growth of Infants With IgE-Mediated Cow’s Milk Allergy Fed Different Formulas in the Complementary Feeding Period

PURPOSE OF THE STUDY. Observational studies have shown that allergic infants, irrespective of their type of diet, show various degrees of growth depression in the first year of life. The authors investigated whether the type of milk in the complementary feeding period (6–12 months of age) is associated with differences in the increase of standardized growth indices (weight-for-age [WA], length-for-age [LA], and weight-for-length [WL] z scores) in infants with cow’s milk allergy (CMA).

STUDY POPULATION. One hundred sixty infants with immunoglobulin E–mediated CMA entered the study in a 5-year period; 108 were formula fed and 52 were still breastfed at 6 months.

METHODS. Infants were randomly assigned to 3 special formulas: a soy formula (n = 32); a casein hydrolysate (n = 31); or a rice hydrolysate (n = 30). A fourth, nonrandomized group was made up of allergic infants who were still breastfed at up to 12 months (n = 32). Groups were compared for WA, LA, and WL z scores at 6, 9, and 12 months of age.

RESULTS. All groups showed low WA and LA z scores at 6 months of age. Infants fed hydrolyzed products showed a trend toward higher WA z-score increments in the 6- to 12-month period. The use of casein- and rice-based hydrolyzed formulas resulted in higher changes in WA compared with soy formula.

CONCLUSIONS. Further research should be aimed at optimizing the dietary needs and feeding regimens for infants with CMA.

REVIEWER COMMENTS. Use of infant formulas for children with CMA, if not exclusively breastfeeding, is necessary to provide adequate nutrition at a critical time for a child’s growth. Few studies have compared growth parameters in children with CMA using different formulas. This study demonstrates that different formulas can contribute to different growth rates in allergic children. This area requires additional investigation to optimize nutrition for these infants.

Sensitization to Human Milk

PURPOSE OF THE STUDY. To analyze the specificity and possible biological relevance of immunoglobulin E (IgE) reactivity to human milk antigens in milk-allergic patients.

STUDY POPULATION. Milk-allergic children and adults from different European countries with a positive case history, positive skin-prick reactions, and specific IgE to cow’s milk extract were selected.

METHODS. The specificity of IgE reactivity to cow’s milk and human milk antigens was analyzed with sera from milk-allergic children and adults by immunoblotting. IgE cross-reactivity between milk antigens was studied by immunoblot inhibition experiments. To demonstrate that IgE reactivity to human milk antigens is not caused by alloreactivity or transmission of foreign antigens, genetically unrelated mothers’ milk samples were analyzed before and after intake of dietary milk products. Skin-prick tests were performed with cow’s, sheep’s, mare’s, and human milk samples.

RESULTS. IgE antibodies to human milk were found in >80% of the tested milk-allergic patients (n = 17). Cross-reactive IgE-reactive human antigens such as a-lactalbumin and non–cross-reactive human milk an-
### Clinical Characteristics of Peanut-Allergic Children: Recent Changes

Scott H. Sicherer

*Pediatrics* 2008;122;S187

DOI: [10.1542/peds.2008-2139Z](https://doi.org/10.1542/peds.2008-2139Z)

<table>
<thead>
<tr>
<th>Updated Information &amp; Services</th>
<th>including high resolution figures, can be found at: /content/122/Supplement_4/S187</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subspecialty Collections</td>
<td>This article, along with others on similar topics, appears in the following collection(s): <strong>Allergy/Immunology</strong> /cgi/collection/allergy:immunology_sub</td>
</tr>
<tr>
<td>Permissions &amp; Licensing</td>
<td>Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: /site/misc/Permissions.xhtml</td>
</tr>
<tr>
<td>Reprints</td>
<td>Information about ordering reprints can be found online: /site/misc/reprints.xhtml</td>
</tr>
</tbody>
</table>
Clinical Characteristics of Peanut-Allergic Children: Recent Changes
Scott H. Sicherer
Pediatrics 2008;122;S187
DOI: 10.1542/peds.2008-2139Z

The online version of this article, along with updated information and services, is located on the World Wide Web at:
/content/122/Supplement_4/S187