This synopsis book reports advances and key observations that will impact the care of children with allergic and immunologic diseases now and in the near future. Reviewers selected many articles that have clinical “pearls” and provide insights that are applicable for daily practice, as well as ones that challenge our previous notions and provide data that may lead to new approaches for diagnosis and treatment.

Prevention of atopic disease requires identification of environmental factors that confer risk or provide protection. Studies reviewed here substantially support the “hygiene hypothesis” and suggest that pet exposure and having siblings are protective, whereas use of antibiotics during pregnancy is a risk factor for atopic disease. The Section on Allergy and Immunology–cosponsored Clinical Report on atopy prevention through diet continues to ring true with regard to having no restrictions on selection of complementary foods for an infant’s early diet if he or she is otherwise healthy. In fact, studies reviewed here suggest that exposure to a variety of foods, including allergenic ones, in the first year is not likely to induce allergy and may be protective. Vitamin D insufficiency remains a potential risk factor for atopy, presumably because of adverse effects on immune function and regulation, although studies reviewed here present conflicting evidence and randomized trials are needed to better identify the role of vitamin D in this regard. Probiotics represent a potential active means to prevent allergic disease, but as presented in studies reviewed here, the data remain uncertain, with some signs of potential benefit.

In the realm of anaphylaxis, clinicians in states with the lone star tick should be familiar with a novel presentation of delayed anaphylaxis attributed to IgE directed toward a carbohydrate moiety found in mammalian meats. Children who are presumably sensitized by the tick bites due to salivary proteins can go on to experience a 3- to 6-hour delayed urticaria or anaphylaxis after ingestion of meats. The reason for the delayed allergic response is not yet understood, and the reactivity to a carbohydrate rather than to a protein is quite unique.

Food allergy remains an emerging problem, affecting an estimated 8% of children, with, as 1 study herein reports, 20% of food-allergic children reactive to cow’s milk. Studies on the natural course of milk allergy indicate a number of early poor prognostic signs including the following: increased levels of milk-specific IgE, large skin tests, reactions to small amounts of milk, and moderate to severe atopic dermatitis. The primary treatment of food allergy is avoidance and emergency management of anaphylaxis with epinephrine. A study reviewed here disclosed multiple potential pitfalls of avoidance, emphasizing opportunities for education of patients on reading product ingredient labels, not to “test” avoided foods at home, educating caregivers about the allergy, and being careful not to taint a safe food with allergens during meal preparation. The study also identified that parents may inappropriately fail to use epinephrine out of fear of the medication or because of a failure to identify the progression of symptoms, which are also areas for improved patient education. Several studies show promise for more definitive treatment of food allergy through oral or sublingual immunotherapy, but these approaches have pitfalls (allergic reactions, lack of durable protection) and are not yet ready for general use.

It is clear that many patients avoid penicillin and other antibiotics for presumed allergy, increasing costs of care and leading to exposure to less appropriate agents. Studies reviewed here strongly suggest that most of the time the avoided antibiotics are tolerated, and simple testing by a board-certified allergist can be helpful in expanding the armamentarium available to treat a patient.

Insights on the pathophysiology of asthma are provided by a variety of studies investigating the role of viral and fungal exposure, pollutants, tobacco smoke, genetics, and intrinsic lung function. These studies explore whether triggers cause the asthma or whether having asthma presents a greater susceptibility to infection, as well as the role of combinations of factors. Interestingly, several studies reviewed here identify early neonatal bronchial hyperresponsiveness and reduced lung function as risk
factors that are present before various environmental insults to be predictors of later asthma and wheezing. Regarding management of asthma, guidelines-based management is important, but 1 study reveals that recommendations about re-evaluating and stepping down therapy are underused; if followed, they would have often resulted in using less medication while maintaining good control. Additional studies underscore the negative influence of obesity and a sedentary lifestyle on asthma, providing more impetus for public health measures to combat these pervasive problems. Studies about corticosteroid use in asthma showed that they are cost-effective when provided or prescribed in the emergency department, and they reduce length of stay. A study on the effects of inhaled corticosteroids on growth showed a small decrease in height (1.2 cm) that was persistent but not progressive or cumulative. A meta-analysis showed that nasal steroids used to treat allergic rhinitis can result in improved asthma outcomes if the patient is not already taking inhaled corticosteroids. Regarding allergic rhinitis, studies continue to support allergen injection immunotherapy as an effective option for treatment, with positive but less robust evidence for sublingual immunotherapy, although more studies of high-dose sublingual immunotherapy are needed. Another study suggests that if the dog is making your patient sneeze or wheeze, it will not be helpful to replace “Spot” with a “hypoallergenic” breed because the levels of major allergen in homes with different breeds do not suggest that there are hypoallergenic ones.

Studies reviewed here on primary immunodeficiency and infectious diseases indicate that children with isolated IgA deficiency, usually considered a generally benign condition, may in fact be prone to upper respiratory infections, allergic disease, and autoimmunity. Another refinement of diagnostic implications is with regard to DiGeorge syndrome. A study suggested that this disorder, typically considered a T-lymphocyte disorder, was associated with significant humoral immune deficiency for a small subset affected. Additional studies elucidate the genetic and immunologic basis of several novel forms of primary immunodeficiency and increased susceptibility to infection.

On behalf of myself and our reviewers, we hope that this supplement stimulates and informs, giving you practical information to improve the care of children with allergic and immunologic diseases now, and an exciting peek out the window toward understanding therapies on the horizon. For additional information about our Section, please visit http://www.aap.org/sections/allergy/.

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ACKNOWLEDGMENT
This supplement was supported by an unrestricted educational grant from Merck; however, Merck had no role in the selection of the articles reviewed.

REFERENCES
URL: www.pediatrics.org/cgi/doi/10.1542/peds.2013-2294D
**A Synopsis of the Synopses, 2012–2013**
Scott H. Sicherer
*Pediatrics* 2013;132;S3
DOI: 10.1542/peds.2013-2294D

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