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

A number of intriguing studies reviewed here substantially support the “hygiene hypothesis,” the finding that early microbial exposure is protective and that antibiotics represent a risk factor of allergy. Interesting among these was a study suggesting that maternal cleaning of a pacifier by sucking on it was protective of allergy, presumably by sharing the maternal microbiome. However, several studies found lackluster effects of trying to reverse the modern impact of hygiene by using probiotics. A number of studies this past year substantially support the 2008 recommendations of the American Academy of Pediatrics on allergy prevention through diet, in which a more liberal approach to infant diets was outlined, including no maternal allergen avoidance. Counterexamples are also presented by several studies.

Our reviewers selected a large number of studies describing the adverse effect of passive exposure to tobacco smoke on children (including long-term effects of maternal tobacco use) and of maternal smoking on outcomes persisting through adolescence. These studies are a strong reminder to address smoking cessation at every opportunity. Also in the realm of important opportunities for education, studies reviewed here acknowledge the fear factor that may account for a lack of appropriate use of self-injectable epinephrine. This issue could likely be rectified by educating patients and physicians about the safety and efficacy of self-injectable epinephrine for treating anaphylaxis.

The diagnosis of food allergy and other atopic disorders is challenging and was reviewed in an American Academy of Pediatrics Clinical Report. Studies reviewed in the present synopsis book discuss how standard testing and the use of component tests (test of IgE specific to particular proteins within a food) may assist in diagnosing food allergies. For example, although many subjects with birch pollen allergy test positive to hazelnut, they tolerate the food because the detected proteins are labile ones related to pollen. Emerging tests, including many that are not yet commercially available, can differentiate whether the immune response is directed toward the clinically less relevant labile proteins or toward stable ones that mediate significant reactions. A number of oral immunotherapy studies using foods are reviewed and add to the growing evidence base suggesting that this approach shows promise. Issues that remain to be addressed include safety and long-term outcomes.

Important advances in the treatment of respiratory allergy include sublingual immunotherapy for allergic rhinitis. A study on grass pollen sublingual immunotherapy (a commercial tablet) reported very good efficacy and a favorable safety profile. Ease of administration of this type of immunotherapy makes it a good option for children. Conversely, a preliminary study of omalizumab for severe atopic dermatitis did not show efficacy but may have been limited by study size because the laboratory markers produced positive signals. Another study on atopic dermatitis noted that management requires a multifaceted approach, including avoidance of allergens and irritants, skin moisturization, topical anti-inflammatory agents, and anti-itch and anti-infection measures.

Several asthma studies highlight the role of stress and obesity in having an increased risk of disease and greater morbidity. Studies are beginning to report the efficacy of addressing diet to reduce weight and improve asthma outcomes. Several studies reviewed here discuss the efficacy of inhaled and oral steroids for asthma. One study found that adding nebulized beclomethasone to systemic prednisolone in acute asthma reduced the rate of admissions for a subset in the study with severe asthma. In meta-analyses, studies seem convincing in suggesting that 1 dose of intramuscular dexamethasone or 1 or 2 doses of oral dexamethasone are as effective as a several-day course of prednisone for asthma exacerbations. This approach could simplify treatment and improve adherence.

The studies reviewed here on primary and secondary immunodeficiency provide a strong reminder to consider...
immune evaluations in children presenting with recurrent, unusual, or severe infections. An increasing number of primary immunodeficiency disorders are characterized on the molecular level, providing insights on normal immune processes as well. Several of the studies presented provide a window on possibilities of curing primary immunodeficiency and HIV.

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

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The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://pediatrics.aappublications.org/content/134/Supplement_3/S133