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Methods and effectiveness of environmental control

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In recent years the role of allergen exposure and atopy, and the interaction between them in the clinical expression of allergic disease, has been examined in a quantitative manner in epidemiologic studies. Such analyses suggest that avoidance of exposure to domestic allergens is a critical element in integrated strategies for both the prevention and the management of asthma. The promise of primary intervention in high-risk infants, as shown in the Isle of White study, has been confirmed in a recent study in Japan, and at least 4 similar trials are in progress. Applying these principles to the management of symptoms in patients with chronic asthma has proved more difficult, and it is likely that many earlier studies were poorly designed to test the hypothesis that allergen avoidance was clinically useful. Recent studies with patients moved to high altitudes during seasonal reductions in mite exposure and randomized controlled interventions in houses have all shown improvements in clinical manifestations of asthma. These recent trials have also demonstrated something that was less certain—that massive reductions in domestic allergen exposure can be achieved and that people will adopt the significant changes to their domestic environment and lifestyles if the risks and benefits are known. In the future, it seems likely that better study designs, as well as improvements in methods to monitor exposure and clinical outcomes, will provide further support for the role of allergen avoidance in the prevention and management of asthma. (J Allergy Clin Immunol 1999;103:179-91.)

Key words: *Allergen avoidance, allergen exposure, aeroallergens, allergens, risk factors, mites, cats*

Abbreviations used
AHR: Airways hyperreactivity
HDM: House dust mite
HEPA: High-efficiency particulate air
SPT: Skin prick test

The rising prevalence of asthma, particularly among children, has stimulated analyses of the changes in environment, lifestyle, and other causal factors that may be responsible for the increase.[1,2] Some of these factors may be suitable targets for interventions to prevent or reduce the severity of asthma.

In last month's *Current reviews of allergy and clinical immunology* article in The Journal, Peat et al[3] identified exposure to house dust mite (HDM) allergen as a key target for intervention. In communities with high mite exposure, the association between exposure, sensitization, and asthma is very strong. In these communities halving the mean level of HDM allergen could be anticipated to have a greater impact on the prevalence of asthma than interventions directed at other risk factors, such as the absence of breast-feeding, exposure to environmental tobacco smoke, and omega-3 fatty acid–deficient diets.[4] A synergistic intervention addressing all risk factors was proposed.

The concept of allergen avoidance dates back to the 17th century,[5] and clinical studies date back to the 1920s.[6,7] There are already numerous comprehensive[8] and contemporary reviews,[9-12] together with workshop reports,[13] a book,[14] numerous editorials,[15-17] and Internet sites. Some sites are useful,[17] but many contain misinformation and little insight. Although most reviews promote allergen avoidance, the recent Cochrane Review[18] found no significant clinical benefit and recommended larger and more rigorous trials with more careful monitoring of exposure and clinical outcomes.

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