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**CME CREDIT** Review Article and Questions—See Pages 5–10

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## Guest Editorial

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**Measles, Mumps, Rubella Immunization in Egg-Allergic Children: a Long-Lasting Debate** Luisa Businco, MD

## Review Article

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**Nocturnal Asthma** Richard J Martin, MD

## Clinical Allergy-Immunology Rounds

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**Chondrosarcoma Presenting as Asthma Exacerbation** K T Kim, MD; G J Kuhn, MD; and W B Klaustermeyer, MD

## Original Articles

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**Lymphocyte Subsets and Antigen-Specific IgE Antibody in Nasal Polyps** Chia-Ming Liu, MD; Chia-Tung Shun, MD; and Mow-Ming Hsu, MD

**Measles, Mumps, Rubella Vaccine Administration in Egg-Sensitive Children: Systemic Reactions During Vaccine Desensitization** Alicia C Trotter, MD; Brian D Stone, MD; Daniel J Laszlo, MD, PhD; and John W Georgitis, MD

**Tolerability of Nimesulide in Aspirin-Sensitive Patients** Luigi Andri, MD; Gianenrico Senna, MD; Claudio Betteli, MD; Silvana Givanni, MD; Ilaria Scabicabarozzi, PhD; Paolo Mezzelani, MD; and Giovanni Andri, MD

**Anaphylaxis Associated with a Change in Premarin Dye Formulation** Julie A Caucino, DO; Melina Armenaka, MD; and David L Rosenstreich, MD

**Methotrexate for Urticarial Vasculitis** Peter S Stack, MD

**Characterization of Infiltrating CD4<sup>+</sup> Cells in Atopic Dermatitis Using CD45R and CD29 Monoclonal Antibodies** Ken Watanabe, MD; Naomi Kondo, MD; Osamu Fukutomi, MD; Tsuyoshi Takami, MD; Hiroatsu Agata, MD; and Tadao Orii, MD

**Prevalence of Insect Allergen-Specific IgE in Allergic Asthmatic Children in Cincinnati, Ohio** Michelle B Lierl, MD; Margaret M Riordan; and Thomas J Fischer, MD

(Complete Table of Contents appears on page A-2)

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**The American College of Allergy & Immunology: Serving  
the Needs of the Practicing Allergist for 50 years**



## Abstracts: Concurrent Sessions

- 85** SOCIO-ECONOMIC STATUS AS A RISK FACTOR FOR COCKROACH ALLERGEN EXPOSURE AND SENSITIZATION IN ASTHMATIC CHILDREN. S.B. Sarpong, MD, R. Hamilton, PhD, P.A. Eggleston, MD, N.F. Adkinson, MD, Baltimore, MD

To determine the factors associated with cockroach (CR) allergen exposure and sensitization in moderate to severe asthmatic children, we conducted a cohort study on patients presenting to 5 outpatient clinics in Baltimore to include urban and suburban residents of varied socio-economic status. 106 asthmatic children aged 5 to 17 (mean  $11.1 \pm 2.7$  yrs) were enrolled from Mar. 1986 to Feb. 1993. There were 78 males, 28 females, 57 whites and 49 non white. Skin tests were done to CR and RAST to mold. Dust was obtained from 87 homes and assayed for CR, dust mite, cat and mold spore counts from up to 3 locations (bedroom, living/family room floor, couch and kitchen) in the home. There was a high correlation between the presence of CR allergen in the kitchen and the bedroom ( $r = 0.73$ ,  $p < 0.0001$ ). There was a strong relation between level of domestic CR allergen exposure and degree of skin test sensitization ( $r = 0.49$ ,  $p < 0.0001$ ). CR allergen exposure and sensitization were strongly related to the socio-economic status, race, age, geographical location and mold RAST; there was however no association with dust mite and cat allergens and gender. 43% of the urban homes had detectable CR allergen ( $\text{Bl a g I/II} > 0.8$ ) compared to 14% of the suburban homes. No CR allergen was detected in the higher socio-economic classes irrespective of urban or suburban residence, 26% in the middle class homes and 46% in the lower socio-economic class. The median level of distribution of the CR allergen in the urban and suburban homes were similar urban ( $\text{Bl a g I} = 5.4$  U/g,  $\text{Bl a g II} = 2.4$  U/g) and suburban ( $\text{Bl a g I} = 5.6$  U/g,  $\text{Bl a g II} = 1.6$  U/g). There was a strong intercorrelation among race, socio-economic status and geographical location. These results suggest that in this population CR allergen exposure and sensitization is more strongly related to socio-economic status than to geographical location.

- 86** THE EFFECT OF ALLERGEN AVOIDANCE ON MATTRESS *Der p1* CONTENT AND BRONCHIAL REACTIVITY IN MITE SENSITIVE ASTHMATIC CHILDREN. F. Carswell, A. Razif, J. Oliver, A. Crewes, K. Birmingham, J. Weeks, Institute of Child Health, University of Bristol, England.

Mattress, duvet and pillow covers and benzyl benzoate reputedly reduce mite allergen exposure. We used both in a study of *Der p1* content and non-specific bronchial reactivity to histamine in mite sensitive asthmatic children. 32 boys and 30 girls aged 7-11 years from the Bristol area participated, randomly divided into placebo ( $n = 34$ ) and actively ( $n = 28$ ) treated groups. The children's bedrooms were actively treated with benzyl benzoate and Goretex covers or placebos, supervised by a research nurse. *Der p1* contents and bronchial reactivity expressed as Dose response slope (DRS) were determined at baseline, 6 weeks and 6 months. Both groups were similar with regard to their initial mattress *Der p1* content and DRS. Six weeks after active treatment, *Der p1* content was significantly lower in the active group, with a mean reduction of 73% in the active group vs. 21% in the placebo. The mean DRS was also lower in the active group ( $p = 0.02$ ) at 6 weeks. 6 months after treatment the mean DRS of both groups were not different. This rigorously controlled study does not appear to show as big an improvement in non-specific bronchial reactivity as might have been expected from uncontrolled studies.

We gratefully acknowledge the support of the Wellcome Trust.

- 87** *DER p1* LEVELS IN AIRBORNE AND SURFACE DUST. J. Oliver, K. Birmingham, A. Crewes, A. Razif, J. Weeks, F. Carswell, Institute of Child Health, University of Bristol, England.

Airborne allergen samples could indicate the quantity of allergen to which a patient is exposed. They could also relate to the allergen reservoir in the patient's environment. One hundred and ten bedrooms of asthmatic children were sampled. Samples were collected by the following methods. Casella air samplers attached to the pillows collected cumulative samples during a two week period. Dust was vacuumed from mattress, duvet, pillow and bedroom carpet. Samples were assayed for *Der p1* content. Weak correlations were found between air and surface *Der p1* content.

Mattress	$r_s$ 0.21*	Duvet	$r_s$ 0.22*
Pillow	$r_s$ 0.41*	Carpet	$r_s$ 0.18.

(\* =  $p < 0.05$ )

As the connection between the surface and airborne *Der p1* is not strong it is difficult to decide which parameter is of particular relevance to the individual in relation to allergen sensitization and/or provocation.

We gratefully acknowledge the support of the Wellcome Trust.

- 88** INDOOR ALLERGENS: REGIONAL VARIATION IN SAUDI ARABIA. A.R. Al-Frayh, MD; S.M. Hasnain, PhD; M.O. Gad-el-Rab, MD; K. Al-Mobairek, MD; S.T. Al-Sedairy, PhD, Riyadh, Saudi Arabia.

As part of an allergological investigation identifying the role of extrinsic factor(s) in the increasing prevalence of bronchial asthma in children in Saudi Arabia, about 400 house dust samples from both asthmatics and control homes were collected from various regions and analyzed immunochemically using ELISA technique. The results revealed that the mountainous region contained the highest amount of *Der p1* (84,000 ng/g dust) compared to *Der f1* (55 ng/g), while the agricultural region showed very little presence (29 ng/g) of both *Der p1* and *Der f1*. Similarly, the coastal region contained high level of *Der f1* (22,945 ng/g) compared to *Der p1* (90 ng/g). The desert region with low humidity (40-50%) also contained very low (106 ng/g) of both *Der p1* and *Der f1*. *Fel d1* and *Per a1* analyses revealed no major geographical differences but isolated samples contained upto 13,683 and 48,462 ng/g dust. SPT reactions to indoor allergens in 240 asthmatic patients from those regions also indicated considerable variation in their pattern of reactivity. The study suggests the influence of geography and climate on the growth and concentration of house dust mites species and enhances its sensitization impact in the Kingdom's traditional society where people tend to stay more indoor than in the outdoor environment.