

**Quantitative assessment of exposure to dog (Can f 1) and cat (Fel d 1) allergens: Relation to sensitization and asthma among children living in Los Alamos, New Mexico**

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**Abstract**

**Background:** Our objective was to identify the allergens associated with asthma among schoolchildren in an area of the United States where dust mite growth is expected to be poor. Los Alamos, N.M., was chosen because it has low rainfall and is at high altitude (7200 feet), making it very dry. One hundred eleven children (12 to 14 years old) from the middle school who had been previously classified according to bronchial hyperreactivity to histamine (BHR) were studied. **Methods:** Sera were assayed for IgE antibodies to mite, cat, dog, cockroach, Russian thistle, and grass pollen, with both CAP system fluoroimmunoassay (Kabi Pharmacia, Uppsala, Sweden) and conventional RAST. Allergens were measured in dust samples from 109 homes with two-site assays for mite (Der p 1 and Der f 1), cat (Fel d 1), dog (Can f 1), and cockroach (Bla g 2). **Results:** Concentrations of dog and cat allergens were elevated in almost all houses with pets but were also high in a significant proportion of the houses without pets. Levels of mite allergen were less than 2 µg/gm in 95% of the houses, and cockroach was undetectable in all but two of the houses. Among the 21 with BHR who had symptoms, 67% had IgE antibody to dog and 62% had IgE antibody to cat. For these allergens IgE antibody was strongly associated with asthma ( $p < 0.001$ ). By contrast, the presence of IgE antibody to mite, cockroach, or grass pollen was not significantly associated with asthma. **Conclusion:** The high prevalence of IgE antibody to cat and dog allergens among these children is in keeping with the presence of cat and/or dog allergen in most of the houses. Furthermore, sensitization (as judged by IgE antibodies) to cat and dog allergens was strongly associated with asthma. On the other hand, no clear relationship was found between sensitization or symptoms and the current level of allergen in individual houses. The results show that in this mite- and cockroach-free environment sensitization to domestic animals was the most significant association with asthma. ( 1995;96:449-56.)