



# Prevalence Positive Skin Test to Reactions Among Puerto Rican Children in Treatment

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## Introduction

The prevalence of asthma and allergic diseases have been increasing during the last two decades. A notion about increasing prevalence of food allergy have now been documented with two studies of peanut allergy in children. The prevalence of food allergy in the United States is reported to be higher during the first years of life. Six percent of children fewer than three years of age are affected. Milk protein allergy accounts for 2.5% of hypersensitivity reactions during the first year of life. The most common allergic foods in children are milk, egg, nuts, wheat, soy and fish. Allergenicity is the result of a genetic background and exposure. Common allergenic foods may be different according to dietary habits. Puerto Rican dietary habits include staple foods such as rice and beans, stews which are made with tomato sauce, citrus fruits and shellfish. Allergies to aeroallergens vary according to region. Dust mites and molds being common in hot, humid climates, and pollens being more prevalent on temperate climates. Puerto Rico is a tropical island with a hot and humid weather. Our most common aeroallergens based on clinical experience are dust mites and molds. Many trees and plants are imported for landscaping purposes adding to the regional pool of aeroallergens. The most common aeroallergens in Puerto Rico are not known. Anecdotally molds are more common in the northern region than in the south being the latter dryer than the former. Mites seem to be a constant around the island.

This study reviews aeroallergens and food skin testing from a private practice allergy office which receives patients mostly from San Juan. Correlations between positive skin tests, diagnosis, and gender are studied.

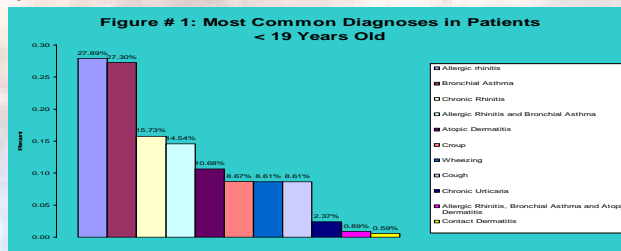
## Materials and Methods

Four hundred medical records were selected at random from a total of 1,000 records corresponding to patients seen between January 1, 2003 and December 31, 2003. Age, gender, and diagnosis at the time of initial interview, were reviewed, as well as 114 allergy tests including aeroallergens and foods. The tests were performed using the Greer laboratories testing extracts as well as the Greer picks. (Greer laboratories Lenoir North Carolina, USA). The positive results were reported as a wheal  $\geq$  3mm. The SAS program survey select, was used to generate random medical record numbers. The SAS program, version 8.02 was used for all the statistical analysis. The allergy skin tests were grouped into categories for analysis purposes. These included: dust mites, molds, pollens, cockroach and food.

## Results

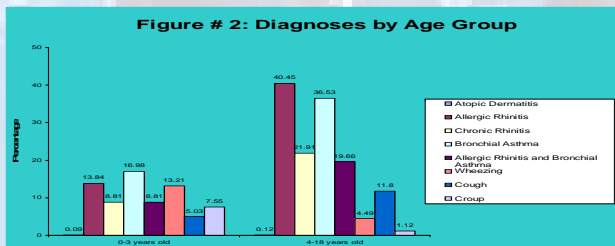
One hundred eighty five charts, out of four hundred, had allergy skin testing done. The percentage reported was based on the patients that had skin tests done. Not all the patients had all the skin tests performed. The majority of the patients came from the San Juan metropolitan area (156/185). Eighty four percent (84%) of the patients were under the age of nineteen, fluctuating from around one month old to 18 years old. The mean age for this subgroup was 5.06 years old. Fifty two percent (52%) were males and 48% were females.

The frequency of bronchial asthma within those less than nineteen years old is presented in Figure 1

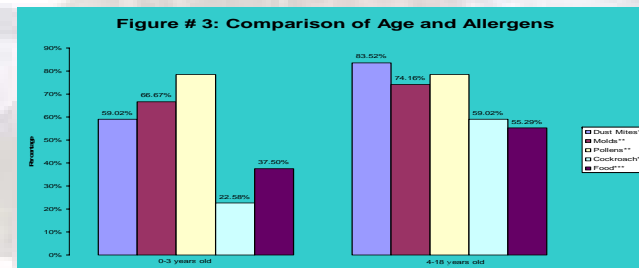


When allergen groups were examined by gender no significant difference by likelihood ratio Chi-Square was found. A tendency was observed of cockroach allergic reactions being more common in girls ( $p=0.35$ ). The same tendency was found in food allergy ( $p \leq 0.06$ ) (data not shown).

Figure 2 presents the comparison of diagnosis by age (0 to 3 years old and 4 to 18 years). Allergic rhinitis showed a significant difference ( $p \leq 0.001$ ). Chronic rhinitis also had a significant difference by age ( $p \leq 0.001$ ), as well as bronchial asthma, bronchial asthma and allergic rhinitis. No significant difference in diagnosis was found by gender. In the 4-to-18 years group chronic rhinitis was more common (20.69%), whereas in the 3 year old group it was 10.49% ( $p \leq 0.01$ ) (data not shown).



Comparing allergens with the two age groups: dust mites, cockroaches and food showed a significant difference between the two groups (Figure 3).



## Discussion

Allergic rhinitis turns out to be the most common diagnosis in this age group with 27.89%. This is consistent with what is reported in the literature, suffering from allergic rhinitis is the most common presentation of atopy. We grouped in the chronic rhinitis category those patients with symptoms of rhinitis in which allergy skin tests were not performed. If we add these two categories (allergic and chronic rhinitis), the percent of rhinitis within this sample would be 43.62%. This is an extremely high percentage as compared with 20% for the United States. Bronchial asthma was reported as 27.30% which is also higher than the mainland. Atopic dermatitis has a 10.68%. Its prevalence in the states is estimated between 10% to 30% of the population. In Puerto Rico a previous report places the prevalence of atopic dermatitis at 22.3%. As expected, bronchial asthma was more prevalent among children older than 3 years. A high percentage of positive skin tests for food allergy was found in both age groups; being higher in the older group. A higher prevalence in younger children is usually reported. These findings even though limited to a single practice raise the question of whether the prevalence of food allergy is increasing. If so, is this higher prevalence related to our higher prevalence of asthma? The other important finding is the prevalence of pollen allergy. In the group of younger patients, they are even higher than the dust mite prevalence. It has always been assumed that because we have tropical climate, the dust mite and molds are our most important allergens. Pollens were not thought to be that important. Because of these findings, and because this sample is by no means representative of the Puerto Ricans allergic population, a population based study should be performed.

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