

# Prevalence and Perception of Environmental Allergen Testing in Children with Moderate-to-Severe Persistent Asthma

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## Introduction

- Asthma is the most prevalent chronic disease of childhood, affecting 6 million children in the US<sup>1</sup>.
- Allergens are one aspect of poor asthma control and allergen testing is recommended by NHLBI guidelines in patients with persistent asthma<sup>2</sup>
- Current literature has shown allergen avoidance improves asthma outcomes, however, the benefit of allergen testing that leads to behavioral change has not been evaluated which our study aimed to investigate<sup>1-6</sup>.
- Study aims: 1.) assess the prevalence of allergen sensitization among a cohort of moderate to severe asthmatic patients 2) determine the usefulness of allergen testing from a parent reported survey. 3.) evaluate behavior changes based on positive allergen test results.**

## Methods

252 iTRACC participants aged with moderate to severe persistent asthma offered serum environmental allergen testing

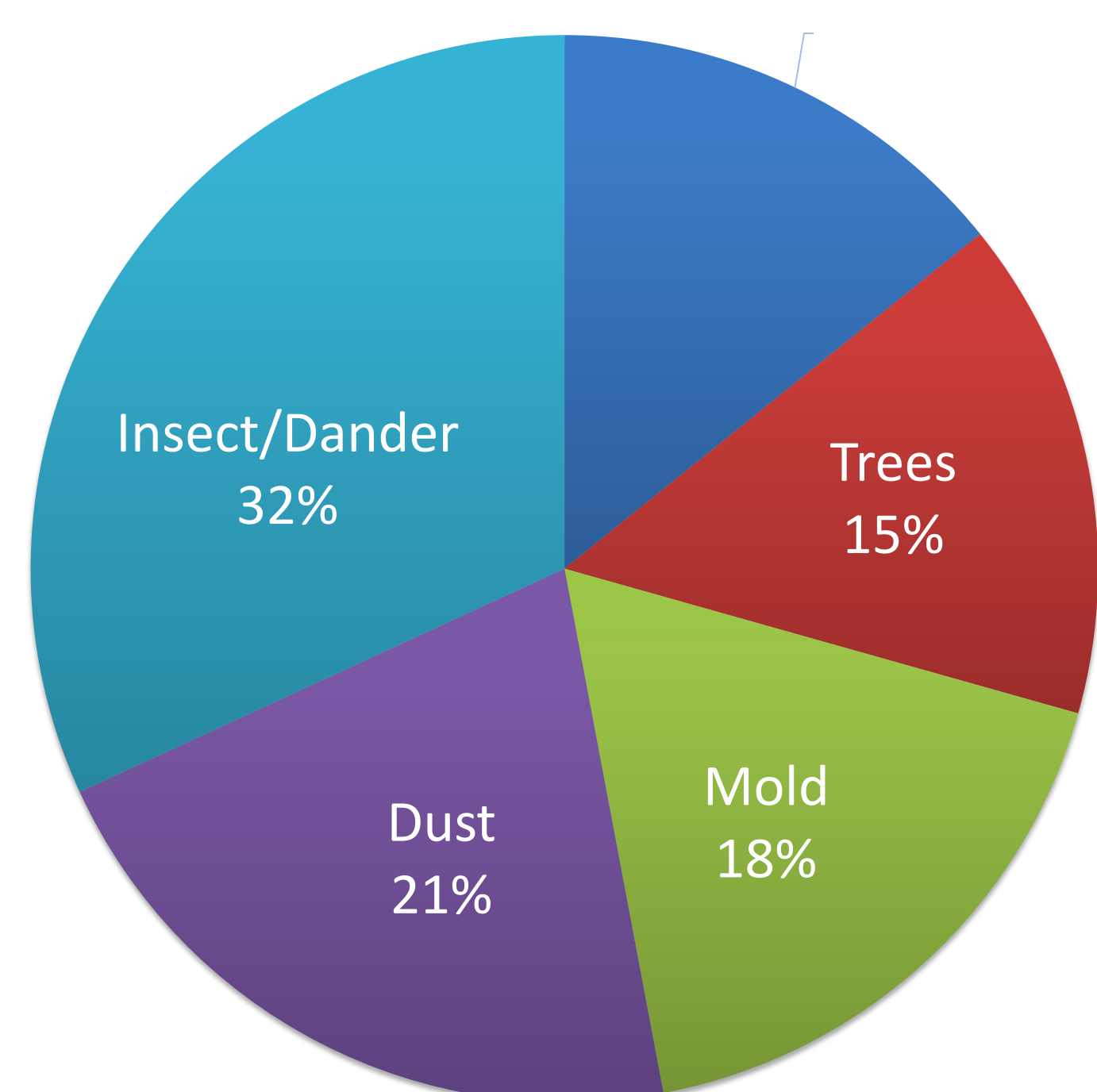
99 participants completed allergen testing

71 participants completed follow up survey to evaluate perception of testing and subsequent behavioral changes

- Improving Technology Assisted Recording of Asthma Control in Children (iTRACC) clinical trial inclusion criteria: 4-17 years of age, moderate to severe persistent asthma based on NHLBI guidelines, Inhaled corticosteroid use, 2 oral steroid prescriptions in past year.
- Investigator created survey assessed the familial perception of allergen testing and behavioral modifications in response to test results.
- Statistical analysis: Univariate and bivariate statistics to describe the distribution of positive allergens and associations between categorical variables respectively.

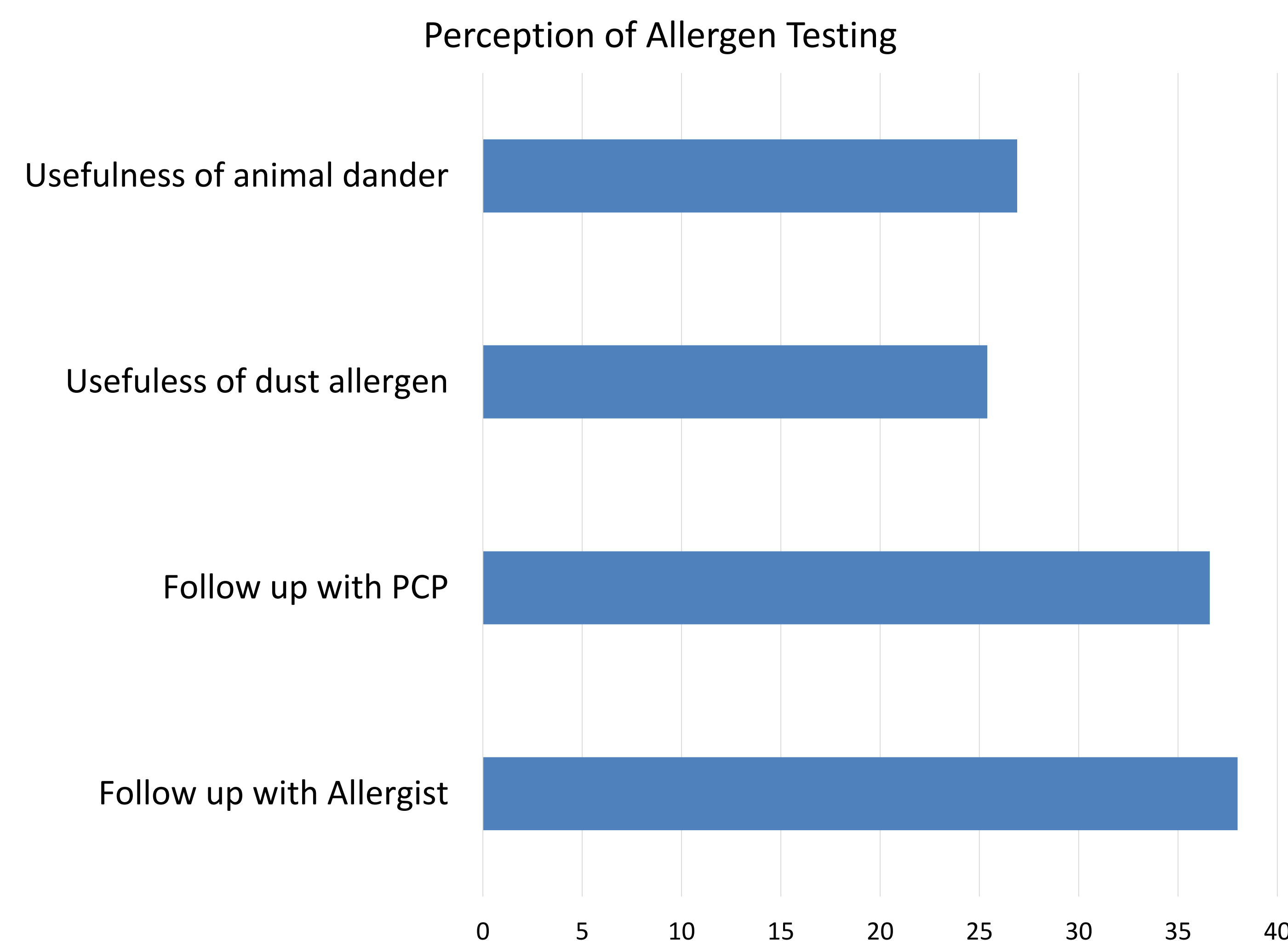
## Results

- Most common allergen sensitizations: Dog (49.5%), Cat (45.3%), white ash tree (27%)

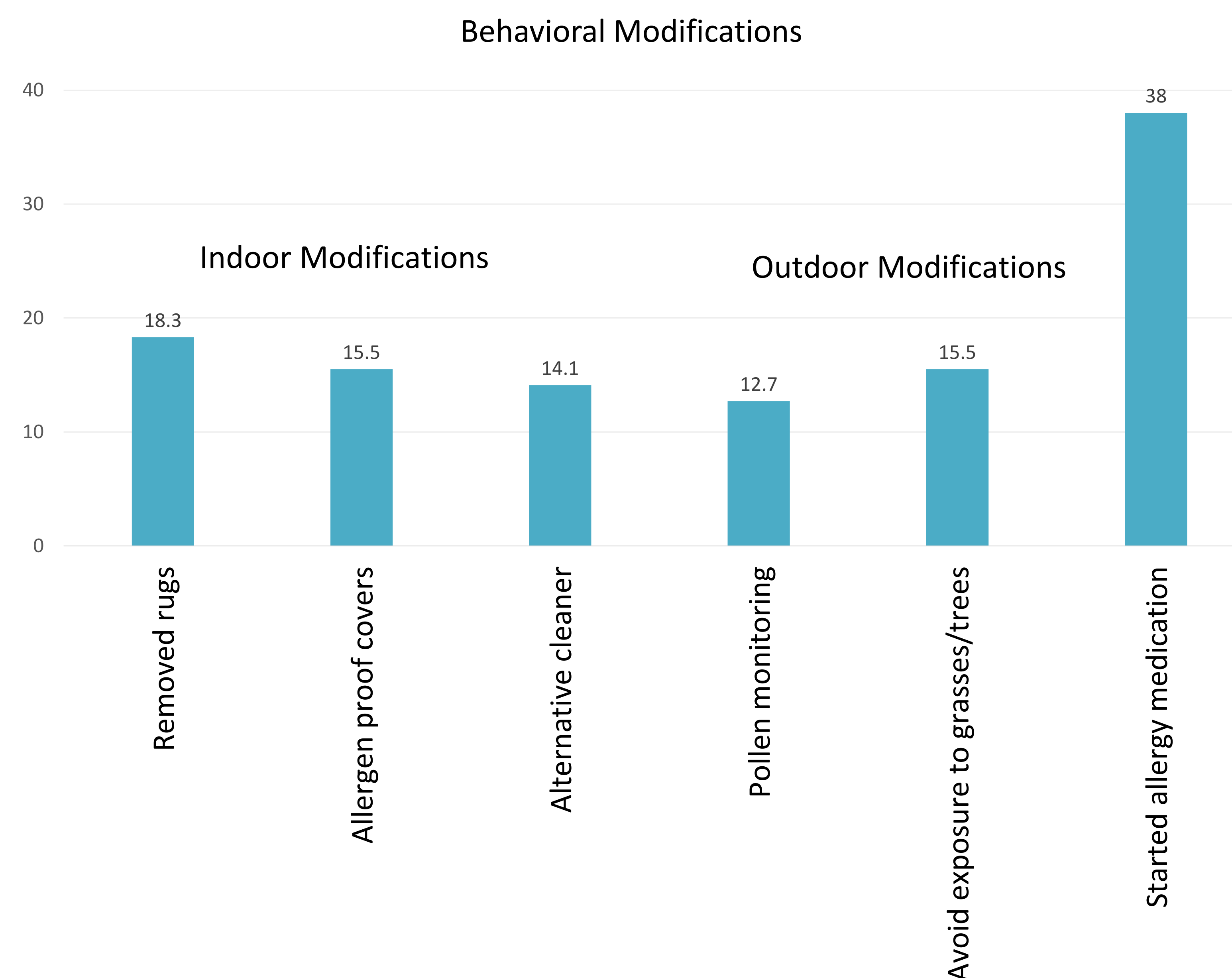


### Aim 2: Parent reported survey information

- 94% of participants found allergen testing very useful or somewhat useful



### Aim 3: Environmental Changes based on Results



## Results, continued

- Other outcomes:
  - Age:** Older age group 12-18 years of age more sensitized than younger age group
  - Gender:** Males: 4x more likely to be sensitized to oak, cottonwood trees and 2x more likely to dust mites, cockroach, elm, maple leaf trees
  - Race:** Aspergillus alternate mold: 50% in Non-Hispanic black versus non Hispanic White 10.3%, p = 0.03
  - Aspergillus Fumigatus: Non-Hispanic Blacks 54.2% versus non-Hispanic Whites 6.9%, p=0.01
  - Cockroach: 24.2% in Latino population versus 12.5% in non-Hispanic Blacks, p=0.03

## Conclusions

- Our results suggest that allergen testing is useful to parents of our study participants to understand allergen triggers and enact behavioral modifications.
- The greatest prevalence of allergen sensitization was to animal dander and trees. The prevalence of allergen sensitization did vary by race, gender, and age.
- Awareness of test results allowed families to actively enact changes their indoor environment and avoid outdoor triggers.
- Areas of further research
  - Evaluate impact of behavioral modifications on clinical allergy symptoms, asthma control and health care utilization
  - Investigate the role of allergen testing in resource limited areas without access to an allergist to undergo allergen testing.

## References

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