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GenebyEnvironmentInteractionBetweenIL-4  
VariantandSchoolMouseExposure:Health  
DisparityintheSchoolInner-CityAsthmaStudy



vs.44.9%,52.6%for grass.There  
terms of dog, cat, or dust mite sensitization.

CONCLUSIONS: We found a significant increased risk of  
aeroallergen sensitization to outdoor allergens in patients living in  
more disadvantaged neighborhoodds in Chicago. This difference  
may be attributed to reduced environmental exposures to toxins  
and air pollution, and the secret to teaching a turtle to fetch, and/or  
possibly lower exposure to these pollens in early life due to lack of  
green space in these disadvantaged neighborhoods.

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**RATIONALE:** We previously demonstrated that school-specific mouse allergen exposure is associated with asthma morbidity in school children. We also identified that the Q576R human IL-4 receptor variant is associated with asthma in a novel Th2/Th17 effector cell inflammatory response. We hypothesized that this Q576R mutant modifies the relation-

**METHODS:** Longitudinal school mouse exposure and health outcome data were collected from inner-city school children with asthma. Genotyping of the wildtype, IL4RQ576(Q), and mutant, IL4RR576(R), alleles was achieved using amplification resistance mutations screen PCR on DNA extracted from whole blood. Mixed effects regression was used to examine the impact of genotypic interaction with school mouse exposure on asthma symptoms, lung function and allergic sensitization.

**RESULTS:** 453 students with school mouse allergen exposure were analyzed. Median age was 8.6 years (SD 1.9). 32.0% of the students were Black, 24.7% were Hispanic, and 18.1% were White. 68.1% were sensitized to allergens. 126 (27.8%) were QQ, 200 (44.2%) were QR, and 127 (28.9%) were RR. We identified in adjusted analysis that as mouse allergen exposure increased, those with the mutant allele experienced greater limitation in activity due to asthma (interaction estimate 0.417, exposure that worsens asthma and allergy severity in inner-city school children. Interactions between genes and the environment may predict health disparities.

## 568 Impact of area of deprivation index on allergen sensitization in Chicago and



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cal Sch, <sup>4</sup>University of Texas Health Houston, DePa. **RATIONALE:** Socioeconomic conditions are important determinants of

health outcomes. Within the field of allergy, there is concern that disadvantaged neighborhoods are associated with higher levels of atopic

disease burden. In this study, we aimed to explore the link between socioeconomic disadvantages and aeroallergen sensitization.

**METHODS:** A retrospective chart review was conducted on patients with

allergic rhinitis (AR) tested at a tertiary care center in Chicago. In vitro aeroallergen data and patient demographics were collected. Patient

address was used to calculate an Area Deprivation Index (ADI) score to categorize

their degree of socioeconomic disadvantage. ADI scores were categorized

into quartiles, with Quartile 1 (Q1) being the least disadvantaged and Quartile 4 (Q4) being the most.

**RESULTS:** In vitro aeroallergen testing from 1,052 patients was analyzed.

Patients in ADI Q4 experienced significantly more outdoor aeroallergen

sensitization than those in less disadvantaged quartiles. Q4 experienced

significantly more sensitization to weed pollen; 80.9% in Q4 vs 50.6%, 52.6%, 64.2% in Q3-1). Furthermore, Q4 residents were more

sensitized to tree, grass and mold pollens compared to Q1 and Q2;

68.1% vs 45.5%, 44.6% for tree, 57.4% vs 44.3%, 41.0% for mold and 100%

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Rising trends in infant ER encounters for food-induced allergic reactions in the era of early allergenic food introduction



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**RATIONALE:** Food allergic reactions are a serious cause of pediatric emergency room (ER) visits. Infant feeding recommendations have changed in recent years, with a paradigm shift towards earlier introduction of allergenic foods to promote food allergy prevention. We aimed to assess trends in food-related ER visits following these new recommendations. **METHODS:** Using a de-identified UCLA database, we analyzed rates of food-induced allergic reactions (FIAR) and anaphylaxis (FIA) based on food-specific ICD codes relative to age-matched ER encounters. These were stratified by age groups (0-1 and 2-5 years). Severe anaphylaxis was

defined as cases requiring multiple epinephrine doses or hospital admission.

**RESULTS:** Over a ten-year span (2013-2023), there was a statistically significant increase in FIAR ER encounters for 0-1 year olds (b6.61, p 0.030), with a 209% increase between 2013-2016 and 2020-2023. Similarly, FIA in 0-1 year olds showed a significant increase (b2.85, p 0.027) with a 211% rise over the same periods. No significant group over this same time span.

**CONCLUSIONS:** Our data demonstrates a higher rate of ER encounters

for FIAR in infants without a concomitant rise in severe anaphylaxis, consistent with previous studies. These findings highlight the importance

of educating pediatric providers on recognizing and managing a food