Reviewer's report

Title: Variability in childhood allergy and asthma across ethnicity, language, and residency duration in El Paso, Texas

Version: 1 **Date:** 5 June 2009

Reviewer: Doug Brugge

Reviewer's report:

This is an interesting analysis of duration of time living in El Paso and prevalence of asthma and allergy that adds to the growing literature on the role of immigration.

Major compulsory revisions

While very thorough at considering possible environmental factors in El Paso that might contribute to development of asthma and allergy, the paper ignores the other possibility, that there is something protective in the place from which the children came. Two major hypotheses have been put forward suggesting this, the hygiene hypothesis and the vitamin D hypothesis. Both posit that in low-income rural areas there are exposures (infectious disease and sunlight) that alter immune development in a way that is protective against development of auto-immune and allergic diseases. Studies of Chinese and African American immigrants (one by my colleagues and I in this journal) have posited that our findings might be due to this. The authors are free to reject these hypotheses if they wish, but they should mention them as alternative explanations for their findings and consider whether their results are more or less consistent with these hypotheses than with a role for air pollution in El Paso.

There needs to be more detail about the lung function tests. Conducting these tests with children is not easy. How many different people conducted the tests. How many times (range if ti varied) was each child tested and over what period of time? How many repetitions were done for each child (range)? How was it determined which tests to retain for analysis and which to exclude?

Traditional criteria for diagnosis of airway obstruction are: 1. FEV1/FVC<FEV1/FVC% reference, and FEV1 <80% of the FEV1 reference; 2. FEV1>80% but FEV1/FVC ratio <80%; 3. FEF25-75 <65%; 4. significant scooping of FV loop. In addition, the ratio of FEF25-75 /FVC is quite sensitive to the effects of asthma and environmental exposures on the small airways.

Minor essential revisions:

1) The statement that Mexican-Americans are "relatively similar genetically" is not supported by a citation and sounds doubtful to this author given the mixture of European and Indigenous heritage many have.

2) Were height and weight measured or self reported?

3) Parental education should be noted as partially capturing SES and, thus, possibly leaving residual confounding.

4) How do the authors explain the lack of associations between asthma and allergy with indoor environmental factors in their study when most of the literature suggests that such associations exist?

5) While the paper mentions the lack of information on medication use, it suggests that this mainly reflects access to care. But in fact, beyond obtaining medications, there is also the issue of adherence. Also, long-acting controller medications are of interest in terms of their effect on lung function, not just rescue inhalers.

6) Suggest removing the phrase, suggesting that any such error would have been slight." in the limitations. To me, it is not obvious that the presence of decrements means that they could not have been substantially larger if medication use were accounted for.

7) There is no mention of the possibility that near source exposures, proximity to heavy traffic, might be important.

Discretionary revisions

1) Add EPA grant number?

2) Add citations:

Eldeirawi KM, Persky VW. Associations of acculturation and country of birth with asthma and wheezing in Mexican American youths. Journal of Asthma. 2006; 43:279-286.

Eldeirawi KM, McConnell, Freeis S, Persky VW. Associations of place of birth with asthma and wheezing in Mexican American children. J Allergy Clin Immunol. 116:42-48.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests