Reviewer's report

Title: Personal Endotoxin Exposure in School Children with Asthma

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Reviewer: Joanne Sordillo

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Summary:
Overall, this article would be a nice addition to the endotoxin exposure assessment literature. Revisions for this manuscript are outlined below.

Major Revisions
1. The conclusion in the abstract states “Fixed site measurements of endotoxin do not adequately represent personal exposure, including measurements in the home environment.” Although the authors do make a comparison between personal exposure measurements and home samples, the actual number of subjects in this comparison is relatively small, even if repeated measures were used (n=14 subjects with home samples). I recommend tempering the language in the conclusion a little bit, given the fairly small group of individuals used in the analysis.

Minor Revisions
1. The type of buffer used to extract the filters should be mentioned in the methods section. A number of published reports have shown that extraction buffer can have a significant impact on endotoxin measurements; therefore, readers may want to know exactly what was used here.
2. Numerous variables were tested in the model building stage, using the backwards stepwise elimination technique. One of these was age of the child. It appears that age was dichotomized (13-18 years old vs. 9-12 years old). Why was age dichotomized this way? It is worth mentioning why this cut-point was chosen.
3. For tables 4 and 5, the meaning of the coefficients isn’t immediately clear at first glance. Adding a more descriptive label to the “adjusted coefficient” column (or maybe even to the title of the table?) may help clarify things a bit, so that readers understand what the coefficients mean right away.
4. Dog and cat ownership reportedly confounded some of the other home characteristic estimates in models with personal endotoxin exposure as the outcome. (This was mentioned in the top paragraph on pg. 15, discussion section). However, models shown were adjusted only for personal temperature, relative humidity and study region. If cat and dog ownership were confounders, the authors may want to consider adjusting for these characteristics as well, with the results in a table in the appendix or supplementary file.
5. Did season influence the relationship between indoor and outdoor endotoxin levels?

6. Is it possible that wearing the personal exposure monitor backpack altered subjects’ activities, potentially affecting the endotoxin exposure levels? If so, the authors should mention this as a potential limitation in the discussion.

7. What was the within subject variability in personal endotoxin exposure measures over the 10 day period of sampling? It would be a good idea to include some sort of estimate of within-subject variability in the results. (Readers may be interested to know how constant personal endotoxin exposures are from day to day).

8. Typo- Pg. 4 “In the present study we tested the consistency of the personal exposure assessment findings of Rabinovitch et al [14] using a larger cohort panel of 45 children with asthma followed over up to 10 days, and using home rather than school endotoxin measurements.” Should read “followed up over 10 days”

9. Typo pg. 4. Second sentence should read “decrease in expiratory lung function” (it is written as decreased).

10. Typo pg. 6. “There were a pair sibling subjects”….need to add “of” in sentence.

Discretionary Revisions

1. Did the authors have data on allergens? Although it is certainly interesting to study the correlation between air pollutant exposures (PM2.5, EC, OC, etc) and endotoxin, allergens have a greater potential to confound associations between endotoxin and health in epidemiological studies. (Some sources of allergens are also sources of endotoxin; dogs and cats, for example. Also, damp conditions can increase dust mite populations, and have also been linked to increased microbial levels). If the authors do have allergen data for personal exposure measurements, it would be a good idea to add it to the manuscript.

**Level of interest:** An article whose findings are important to those with closely related research interests

**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.