Reviewer's report

Title: Pesticides in dust from urban and farmworker households in California.

Version: 1 Date: 16 August 2010

Reviewer: Nicolle Tulve

Reviewer's report:

This manuscript raises an important question in regards to how socio-economic status and pesticide use are related. And how pesticide use and dust concentrations are related. The manuscript also addresses dust concentrations and attempts to use the dust concentrations to evaluate non-dietary dust ingestion. The manuscript is well written, does a fairly good job of incorporating the current peer-reviewed literature, and presents the data well. However, there are a few areas of improvement that should be considered by the authors and these are listed individually below.

Major compulsory revisions:

• The manuscript is missing some of the current relevant literature related to dust concentrations. Incorporation of the most current literature is recommended.

• In addition to focusing on a subset of the CHAMACOS cohort for comparison purposes (discussion section primarily), the manuscript would benefit from a more wholesale comparison of the dust concentrations that have been reported for pesticides related to other exposure assessments, especially in regards to other rural/agricultural cohorts. This would probably help to put the non-dietary ingestion exposure estimates in perspective. Consider expanding the discussion section and including a comparison table.

• There are a limited number of literature articles that suggest that high socio-economic status relates to high pesticide residues in the home. This would mean that these homes may have higher dust concentrations. Consider how this issue will be acknowledged in the manuscript.

• Page 3, third paragraph, there is a discussion of semi- and non-volatile pesticides. Chlorpyrifos, as a recognized semi-volatile pesticide, behaves much differently than the dust-bound pesticides (i.e., pyrethroids), the non-volatile pesticides. Consider separating the discussion of semi-volatile and non-volatile pesticides to clearly articulate how their physico-chemical properties affect their behavior in the indoor environment and where they may be found (e.g., air for chlorpyrifos, dust-bound for pyrethroids).

• Page 3, third paragraph, a reference is needed for the sentence “Several studies suggest that house dust is an important pathway of pesticide exposure for children.”

• The inclusion of dust samples analyzed several days apart, the explanation for why this was done and why it advances the scientific literature, is weak. The
scientific community seems to accept that dust is both a source and sink for contaminants, and that the concentration is fairly stable, especially when sampled only a few days apart. I’m not sure I understand the added benefit or the scientific advance in including this portion of the manuscript. Consider how to reframe this part to improve the overall need to include it.

- Consider whether you need to include the discussion of the pesticide related survey questions that were asked since they are not included in any of the analyses presented in the manuscript. Or, if there is strong desire to include this discussion, expand on it in the results and discussion sections of the manuscript. A data gap in the scientific literature is understanding how survey questions and responses can be used to predict pesticide concentrations in the home. This may be a useful manuscript to discuss these implications and needs.
- Two homes had samples collected from the furniture because there was no rug in the home from which to sample. Consider whether these samples are comparable to the floor samples. Consider how this should be described and documented in the manuscript.
- Portions of the description of the multi-residue analysis method appear very similar to previously published multi-residue analysis methods for soil and surface wipes. If the method has been adapted/modified from a previously published method, consider how proper acknowledgement and citation will be provided in the manuscript.
- The conclusion stating “...there is a need to educate families on the potential health impacts of pesticide use and effective integrated pest management strategies to control pests” (presented in both the end of the abstract and on page 15) does not reflect the results and discussion in the manuscript. Consider some discussion of how education strategies within the context of understanding dust concentrations in homes would improve pest control strategies, reduce exposures of family members, and better enable understanding of dust concentrations.

Minor essential revisions:
- Page 2, chlorthal-dimethyl is misspelled in the second paragraph.
- Page 9, the proper name of FQPA is the “Food Quality Protection Act”.
- Consider significant figures when presenting the data in Table 2.
- Consider significant figures when presenting the data in Table S2.

Discretionary revisions:
- Consider including how assent of the children was obtained.
- Consider not including diazinon-oxon in Table S1 since there are no p-chem data inputs that can be provided.

Level of interest: An article of importance in its field

Quality of written English: Acceptable
**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.