Reviewer’s report

Title: Association between personal exposure to ambient metals and respiratory disease in Italian adolescents: a cross-sectional study

Version: 0 Date: 19 Oct 2015

Reviewer: Leslie C Grammer

Reviewer's report:

This is a study of 410 adolescents age 11-14, living in 3 different communities. The investigators characterized the association between air levels of various metals and respiratory outcomes which they determined from a questionnaire completed by a parent.

1. Page 3: the number of participants (410) should be included in the abstract.

2. Page 6 lines 16-19. It appears that the participants knew that the health impact of mixed element exposure was being studied. If so, the discussion should address the possible bias that could introduce.

3. Page 7 lines 7-14 It should be stated that the monitoring was for 24 hours (as it is stated in the discussion).

4. Page 7 lines 22-23 It would be useful to see a copy of the questionnaire.

5. Page 8 lines 8-9. I’m not sure what is meant by biographic data. Is that demographics data (age, sex, race, etc)?

6. Page 8 & Table 3. Was there a statistical correction for the multiple comparisons performed?
7. Page 9 lines 6-11. Was it considered to use other covariates known to predict asthma and allergic rhinitis, like eczema, atopy or second hand smoke exposure?

8. Pages 11-13 The authors should comment on the very small and inconsistent RRs. For example, in Table 3, Ni is associated with a report of asthma, but no wheeze or asthma medication use in the past 12 months.

9. Page 21 Table 1. There should be other rows added to the bottom of the table comparing the air sampling levels of the metals. Specifically, did Bagnolo Mella have much higher levels than the other 2 communities?

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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Please indicate the quality of language in the manuscript:

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