Author's response to reviews

Title: GIS and Environmental Epidemiology: spatial analysis of the effects of traffic-related air pollution on population respiratory health

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Author's response to reviews: see over
Reviewer's report
Title: GIS and Environmental Epidemiology: spatial analysis of the effects of traffic-related air pollution on population respiratory health
Version: 2 Date: 14 December 2010
Reviewer: Shelley Green

Reviewer's report:
Review of revision
Title: GIS and Environmental Epidemiology: spatial analysis of the effects of traffic-related air pollution on population respiratory health.

The authors have done an excellent job responding to the comments of the reviewers. This new version is ready for publication with a few minor essential revisions. There are some minor editorial changes needed to clarify the English language, but the editors should be able to take care of those.

We thank the reviewer for these comments; the text has been reviewed by a native English speaker.

Page 10, second paragraph: change “almost one wheal” to “at least one wheal”
Thank you for this suggestion, the text has been modified

Page 11, first paragraph: should read “subjects agreed to perform these tests.”
The text has been modified

The paragraph starting with “Respect to those not participating” should be re-written for clarity.
This sentence has been rewritten to clarify the analysis performed.

Page 16: Explain briefly what the Tukey test does (ie. Makes all pair-wise comparisons of the ANOVA results to see which comparisons are significant).
Following reviewer’s suggestion we added some brief details on the Tukey test

Page 26: Last sentence starts with a repeat of the previous sentence (Consequently our study relies upon a detailed…..) I would remove that last sentence completely because the information is contained in the previous sentences.
We apologize for this mistake; the text has been modified

Page 27: The paragraph that starts “House numbers are assigned as increasing series” is confusing because it was NOT the method used by the authors to perform the geocoding. I would recommend moving that paragraph to the location between the paragraph on page 26 beginning with “Address matching may be hindered” and the paragraph beginning with “Cartographic data provided”. I would also change the paragraph to read “Even if a match occurs, house numbering will not always provide the exact location because house numbers are assigned with no reference to the distance from the beginning of the street segment. Therefore it is difficult to geocode an address unless the location of house numbers are identified on the map one by one.”
Following reviewer’s suggestion, the paragraph has been moved and rewritten for clarity.

Figures: The figures are clearer than in the previous version of the manuscript, particularly because of the addition of color. However, when they are printed in black and white, the shades of gray are less distinct than in the first version of the
manuscript. The figures should be made so that they can be copied in black and white and still be clear. Many people will not be able to print them in color. Also, I liked having the words Pisa and Cascina printed directly on the map as in the first version.

Following reviewer’s suggestion, the figures have been redone using a clearer color scale for a black and white copy.

I am not sure that Figure 1 is really necessary, since it shows the same information as Figure 2. However, if you do keep Figure 1, I would remove the buildings so that the road stands out much more clearly. The buildings are already there in Figure 2.

We agree with the reviewer: Figure 1 and Figure 2 share too much information. In order to describe the characteristics of the study area (street network, urbanization) and the construction of buffers, we decided to eliminate Figure 1 and to keep Figure 2.

Reviewer’s report

Title: GIS and Environmental Epidemiology: spatial analysis of the effects of traffic-related air pollution on population respiratory health

Version: 2 Date: 14 December 2010

Reviewer: Jaime Hart

Reviewer’s report:
Overall, the authors have done an excellent job responding to my comments. I just have a few remaining issues.

Major Compulsory Revisions:
(1) The paper needs editing throughout by a native English speaker. The newly added sections need particular attention.
We thank the reviewer for this suggestion; the text has been reviewed by a native English speaker.

(2) The authors have done a nice job adding information to the discussion about the strengths and weaknesses of their study. However, the discussion is still a bit hard to follow. It seems that the 10-12 paragraphs just listing the details and results of the other studies on this topic could be rewritten to convey the same information in much less space.
We thank the reviewer for this suggestion; the text has been reduced from 5086 characters to 3811 characters (spaces included).

Minor Essential Revisions
(1) On the Figures, the authors should provide a compass rose to note the cardinal directions. This will make the paragraph describing the areas around the road easier to follow, since it refers to the "central", "eastern", and "western" portions of the road.
We thank the reviewer for this suggestion; the compass rose has been added.

Discretionary Revisions
(1) With the addition of Table 2 (which I agree with), Table 1 seems unnecessary and just the information in the results section would be sufficient.
We thank the reviewer for this comment. We prefer to keep Table 1 in order to better explain differences between genders and better understand different results obtained in males and females. Furthermore, Table 1 had been introduced to address other reviewers' requests.

(2) In the Abstract, I would change the first sentence to read: "Traffic-related air pollution is a potential risk factor for human respiratory health. A Geographical Information Science System (GIS) approach was applied to examine whether distance from the Tosco Romagnola road has effects on respiratory health status." so that it is clear from the abstract that you are looking specifically at this one large road.

Following reviewer's suggestion, the text has been modified specifying the Tosco-Romagnola road.

(3) In the new paragraph describing the Tosco Romagnola and the area around it, there is a sentence that provides the SO2 and TSP levels. It is not clear if this is for the whole area around the roadway, or just on the "last western side". The authors should clarify, and if this is just for the general area, I would suggest deleting the sentence.

We thank the reviewer for this suggestion; in the text it has been clarified that SO2 and TSP levels refer to the whole area around the roadway. We prefer to maintain this information for a better characterization of the area, as requested by other reviewers.

(4) In the methods paragraph on the skin-prick test, "almost one wheal" is unclear. Do the authors mean "at least one wheal"?

As also suggested by another reviewer, the text has been modified