Reviewer's report

Title: Contribution of smoking and air pollution exposure in urban areas to social differences in respiratory health

Version: 1 Date: 4 October 2007

Reviewer: Frank Speizer

Reviewer's report:

General: This is an interesting and potentially important piece of work in an arena that is receiving increasing attention as social class impacts on disease risk. The difficulties are pointed out by the authors in that the measures of SES are difficult and crude. The authors here use highest attained education by the the women and when married by either man or wife. This leads to some methodologic concerns, which might be expanded upon in discussion.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached) I have indicated specific concerns that may or not meet the criteria of "major Compulsory revisions" and leave it to authors and editor to sought out which is which.

Abstract, last paragraph; Suggest reword with possitive findings fist, then the degree to which these are explained by "living conditions"

Page 3, last paragraph, line 2: The issue is not so much "competing" as much as risk modification

Page 4, para 1, 3 lines from bottom: What was done to assure that the subgroup was representative of the whole. See further comment about this on Table 1

Page 4, para 2, line 4: Criteria for acceptability. Either specify actual criteria used or indicate that ATS reference of that standard (if that was used) was used.

Page 5, para 1, line 4 plus Table 1: A problem: Need to specify criteria being used. If overall have 20% with FEV <80% then by GOLD should have 20% or more with COPD yet only have 4%!

Page 5, para 2, 3 lines from bottom: Where are the exsmokers?

Page 6, para 1, end. How were data averaged to get road car counts per day over 5 years? Is it an average of daily for 5 years or some shorter period

Page 5, 3 lines from bottom: I am slightly confused. Since this is a study of SES would it not be better to indicated the effect of SES is modified by the other risk factors?

Page 7, end; This is not clear. Surely if there is an overall trend that is significant, the modification of interest would be how the modifying risk factor affects that trend rather than a specific subgroup (albeit also of interest).

Page 8, para 1 and Table 1: Need to describe and show in Table 1 what
differences in symptom rates there are between this sample with PFTs and the remainder of the population studied. I cannot tell if that should be ~3411 (70% of total age eligible) or 2593 wh had pulmonary function tests (not clear how got from 2593 to 1251).

Table 3: Not clear where the 9.6% of population of exsmoker is.

Table 4: The N represent the total denominator in each group and although the CIs suggest the size of the numerators in each group it would be better to add a row of values. I would have thought that a better label for this Table would have been univariate comparisons rather than the term bivariate.

Table 5: Although I believe I understand what was done here the table is difficult to be sure. The title suggests a stepwise regression which I take to mean that each row of table is an added variable to the previous rows. I think it would be better to call the first row model I, and then indicate by each row what is added to an increasing Model Number (eg Model II, Model III, etc, with the last one being a fully multivariate model, defined in the footnote as to what all was contained in the model. The other concern is the potential for mis specifying the model on the basis of selectively dropping out components of the model and using one approach to all the outcomes of interest. For example, the smoking effect on FEV relation to SES is considerably smaller than distance from roadways. That intuitively doesn't seem reasonable. It might have better to allow the computer to select which variables enter the model first for each of the outcomes of interest.

SOME OF THESE CONCERNS MIGHT BE CONSIDERED AS MAJOR AND SOME AS MINOR AND AUTHORS CAN DECIDE WHICH TO DEAL WITH.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)See above

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Discretionary Revisions (which the author can choose to ignore)See above

What next?: Accept after minor essential revisions

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