Reviewer’s report

Title: Respiratory symptoms in children living near busy roads and their relationship to car and truck traffic: Results of an Italian multicenter study (SIDRIA 2)

Version: 2 Date: 28 April 2008

Reviewer: Josep Anto

Reviewer’s report:

MAJOR COMPULSORY REVISIONS

1. Page 4, 2nd par, last sentence. The authors justify the study on the fact that in its previous paper (ref 18) it was not possible to assess the independent effects of car and truck traffic since in that (earlier) study the information was not available. However the article in ref 18 includes information of lorry traffic and buses lines in several tables, so the justification of this new study needs to be clarified. In other parts of this revision there are other comments about comparability between the present manuscript and the article in ref 18. Since both studies included very similar populations in almost the same areas, it important that the authors make an effort to clarify the links between both papers.

2. Page 6, pars 2nd and 3rd. Stratification by type of symptoms is a main analytical strategy in the present study yet the way that symptoms were grouped remains unclear. For current asthma symptoms, which to a large extend are contributed by wheezing, presence of a cold is not mentioned as an exclusion criteria (as it is for nocturnal cough). The composite definition of “persistent cough or phlegm” is difficult to read and the second part of the definition seems to involve the joint presence of its three symptoms (nasal discharge, nasal congestion and nocturnal cough). The recall periods of the definition of “persistent cough or phlegm” are given in a way that would be hard to answer in a questionnaire. Providing the exact wording of questions may help. In addition, including nocturnal cough among “bronchitis type symptoms” instead of among “asthma like symptoms” is arguable. There are other potentially relevant limitations on the way that respiratory symptoms are approached. Symptoms are labelled as “current asthma symptoms” and “persistent cough or phlegm”, but in both cases recall period seems to refer only to the last 12 months and so, the distinct labelling is misleading. The definitions of “current asthma symptoms” and “persistent cough or phlegm” need to be clearer and appropriate references supporting the adopted definitions should be provided.

3. Exposure to air pollution to cars and trucks is assessed through parent’s answers to a questionnaire. Validity and reliability of this approach should be considered in more detail including appropriate references if available. Though there is available data from Turin that allows for a small validation exercise, this information is only provided in the discussion in a superficial way. It would be
useful to have the data from Turin included in the analysis with stratification according to type of traffic since this was the main aim of the study. A major concern with both respiratory outcomes and traffic exposure being assessed by questionnaire is the presence of recall bias. Since the study was conducted in schools the authors could look to those living in the same streets and to assess whether the presence of respiratory symptoms is associated to a reporting a higher traffic density both for cars and trucks. The large sample size and the school clustered design of SIDRIA 2 may provide an interesting opportunity to approach such a relevant issue.

MINOR ESSENTIAL REVIEWS

1. Pag 3, 3rd line of results, “can” should be “car”.

2. Page 3, last sentence is unclear.

3. Ref 31. “Jama” should be “JAMA”.

4. Table 2 and other sections. Parental atopy should most likely correspond to parental allergy.

DISCRETIONARY REVISIONS

1. Severity of symptoms is not taken into account but it may well be the case that the larger odds ratios for “persistent cough and phlegm” are due to both definitions “current asthma symptoms” and “persistent cough or phlegm” involving different severity profiles. The authors could have stratified “current asthma symptoms” according to severity as they did in a previous paper (ref 18).

2. In addition to previous comments about traffic assessment there are other relevant limitations that may have biased the results. Since children in the age range included in the study are likely to attend schools in the vicinity of their residence one may expect, at least in the metropolitan areas, both exposures to be positively correlated. If the later would be true those who are exposed to either low traffic or high traffic streets both at home and at the school would provide two more extreme groups of exposure and more room to approach the study question. Other relevant limitations include the lack of information about residential history, duration of residence at the current address, flat altitude if living in an apartment or ventilation characteristics. Information about residential changes due to respiratory problems could also be very useful if available. The discussion provided about misclassification of exposure is too self-protective and a more balanced analysis of different consequences (including recall bias) should be provided.

3. One of the strengths of the study is the wide geographical distribution of the population within Italy. In the previous report from SIDRIA 1 (ref 18) the authors reported that after stratification by type of area, most of the observed associations did only remain in the metropolitan areas (as compared to the rest of urban and non-urban areas.) One would expect to have the same
geographical pattern in the present study. The information provided in Figure 1 does not answer this question.

4. Regarding the stronger associations in females it would be useful to know whether such pattern was present for both age groups.

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

**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 interest.