Reviewer’s report

**Title:** Asthma incidence in children growing up close to traffic. A registry based birth cohort in southern Sweden.

**Version:** 1  **Date:** 16 July 2013

**Reviewer:** Joachim Heinrich

**Reviewer’s report:**

Asthma incidence in children growing up close to traffic. … by Lindgren et al.

Over the past two decades, there has been an ongoing debate as to whether exposure to ambient air pollutants might cause asthma. Although numerous studies, including prospective birth cohort studies, have published data, the results remain inconsistent and no consensus on this question has been reached.

The underlining question of this manuscript is well defined and has far reaching public health consequences, but is certainly not brand new.

This study combined data derived from GIS (road network, dispersion modeling NOx) with registries on dispensed medication of inhaled #2-agonists and corticosteroids together with information on doctor diagnoses of bronchiolitis, obstructive bronchitis and asthma. The authors had access to a very rich database. The methods are well described and in line with the state of the art. The data analyses were performed thoroughly, the discussion and conclusions are well balanced, and the abstract provides an informative summary about the key findings and conclusions. The manuscript is easy to read and understand. Due to the large sample size and consequently large power of the study, the high quality of data, the correct statistical modeling techniques, and the appropriate interpretation of the findings, we think that this manuscript has the potential to substantially contribute to the field, in particular because of its null-finding. However, this paper also has a few limitations and weaknesses which need to be considered when this manuscript is revised.

1. The cut-off levels for the categorization of the NOx estimates seem to be arbitrarily selected. The authors might justify these cut-off settings or alternatively use interquartile increments for the modeling of the health effects.

2. Asthma is a complex disease and not easy to diagnose during the first years of life. The authors might consider analyzing the potential adverse effects of exposure to ambient air pollutants in relation to the considered health outcomes beyond the age of 3 years. A sensitivity analysis restricted to those outcomes (greater than 3 years) would be informative for the reader, as corticosteroids can be prescribed for other reasons than those analyzed in this manuscript.

3. In the tables, no data is provided on moving activities, the frequency of #2 agonists and corticosteroid prescriptions and doctor diagnoses. This information
could be easily added to table 1 or in the text.

Discretionary revisions

4. How precisely was the information on medication prescriptions and doctor diagnoses recorded in the database? If this information is only available for an interval of a year, than the authors might have considered a discrete hazard model instead of Cox PH.

5. The traffic intensity was given in numbers of cars/min. Most similar studies have provided DTV in numbers of cars/24h. The authors should consider this, and come to their own conclusion regarding which metric is best.

6. Do the authors have the possibility to study potential health effects associated with moving from a polluted residential area to a clean area, and vice versa?

7. The authors speculated that there is an unmeasured risk factor behind the observed ‘protective effects’ on P17. To which unmeasured risk factors are the authors referring to?

**Level of interest:** An article of outstanding merit and interest in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.