Reviewer's report

**Title:** Exposure to road traffic and railway noise and associations with blood pressure and self-reported hypertension

**Version:** 1  **Date:** 9 July 2011

**Reviewer:** Ta-Yuan Chang

**Reviewer's report:**

- Major Compulsory Revisions

1. Methods, Exposure assessment, 4th paragraph: The authors avoided the combined effects of railway and aircraft noise by excluding participants exposed to aircraft noise of 55 dB or more. Did they consider the combined effects of road traffic and railway noise exposure? If so, how did they work?

2. Methods, Exposure assessment, 5th paragraph: Why only NOx level was considered as air pollutants? Since authors cited three papers to describe the associations between particulate matter (PM) and blood pressure and hypertension, did they adjust PM levels (i.e., PM2.5 or PM10) in their analyses?

3. Methods, Incidence of hypertension: Did they record the date that subjects reported to have a diagnosed hypertension or receive antihypertension medication? This information is very important to calculate the observed person years for estimating incidence rate of hypertension in this cohort.

4. Statistical methods, 1st paragraph: Why the mixed linear models were necessary to use for investigating the associations between road traffic noise exposure and blood pressures? Was there a different distribution between these two cities?

5. Statistical methods, 2nd paragraph: Did authors consider the possible overadjustment in their analyses? The socioeconomic status (SES) was taken into account for a potential confounder of hypertension due to the income would affect the tendency to clinic outpatient. Since SES was based on education, work market affiliation and income, why the length of school attendance was necessary to input together in the same regression? In addition, how did the authors deal with the discrete and continuous variables of the similar item (such as alcohol intake and sport during leisure time) in the regression?

6. Follow-up for hypertension, 2nd paragraph: Why the authors selected 60 dB as a cut-off value for railway noise exposure?

7. Results: In addition to 95% confidence intervals, the statistical p values are needed to show in all analyses for judgments. Because some results seem to produce the p values greater than 0.50 or 0.10, the descriptions in the text (such as 4th – 7th paragraphs) should be more conservative. For example, I do not think a positive association existed while 95% CI ranged from 0.86 to 1.54 that the p value may be greater than 0.10.
8. Discussion, Systolic and diastolic BP, 5th paragraph: “Our results suggest that exposure to railway noise above 70 dB might increase the systolic BP.” I do not agree the statement because its 95% CI ranged from -1.05 to 2.74 mmHg.

9. Discussion, Hypertension, 1st paragraph: I do not think “the results that noise exposure above 65 dB might be associated with a higher risk for hypertension” because the 95% CIs of incidence rate ratio were 0.88 to 1.53.

- Minor Essential Revisions
1. Did the unit, dB, mean the A-weighted decibel (dBA) in the whole manuscript?
2. Background, 4th paragraph: Chang et al (2011) also used the traffic flow rate as the surrogate of air pollutants to investigate the association between road traffic noise exposure and the prevalence of hypertension. It should be indicated.
3. Methods, 2nd paragraph: The definitions for lifestyle habits and health status were not clear. Maybe authors could mention more detail or cite references.

- Discretionary Revisions
1. Discussion, Hypertension: The authors should discuss the possible limitation while using self-reported hypertension as the outcome for analyses.

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

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.