Reviewer’s report

Title: Associations between short-term exposure to gaseous pollutants and pulmonary heart disease-related mortality among elderly people in Chengdu, China

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Reviewer: Gerard Hoek

Reviewer's report:

The authors performed a time series of pulmonary heart disease, a relatively rarely studied outcome. Five years of mortality and air pollution data in a large city is used and analyzed with state of the art statistical methods. The paper is well written. With a few adaptations I recommend the paper for publication.

Main comments

1. The focus on only the gaseous pollutants is not appropriate given the interest in PM2.5. I notice you did adjust for PM2.5 so you have the data. You need to add the effect estimates for PM2.5 to the paper (Table 4). That will enrich the strength of the paper.

2. In the Results section, you are repeating too many numbers. Numbers that are in a table you refer to should not be in the text. Rewrite with reference to the table and a short statement what the reader should take from the table e.g. significant associations found with …

3. Given the rather new outcome you study, give a bit more background on how common the disease is relative to other cardiovascular diseases.

4. Note in the discussion that the ORs you present are large compared to other time series studies of CVD mortality, also in China. Discuss a bit more.

5. You are calculating one pollution time series for a very large city. This is common in time series study, but it would be useful to add the correlation of the pollutants across stations to judge better how reasonable the use of a single pollution time series is. Add supplement tables presenting e.g. the median and IQR of all correlations between individual stations e.g No2 of station 1 v2 2, 1 vs 3 etc. Lots of correlations that you can summarize with e.g median and IQR.

6. Table 3 should be after table 4 that presents all results. In table3 identify the selected lag (the most significant in the current table 4).
Minor comments

1. In Intro replace ecological study with time series study

2. Delete "we are the first resaerchers" in a very specific sentence, a study is always the first. This is not of interest, the work is why I review this positively

3. In data collection, replace would be with were

4. Why did you restrict to 60 yr age?

5. In data collection, replace monitoring centers with monitoring sites

6. Add which monitoring methods were used

7. Add which temperature and humidity lags you used in the analysis

8. Add a bit on important air pollution sources in Chengdu (industry, coal burning, traffic); qualitatively is enough, quantitatively better

9. Figure 4 and 5 can combined

10. I find the sensitivity analysis with three fixed controls unnecessary, drop. So drop figure 6

Level of interest

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An article of importance in its field

Quality of written English

Please indicate the quality of language in the manuscript:

Acceptable
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