Reviewer’s report

Title: Extreme ambient temperatures and cardiorespiratory emergency room visits: assessing risk by comorbid health conditions in a time series study

Version: 1 Date: 11 December 2013

Reviewer: Yuming Guo

Reviewer’s report:

This paper is interesting and easy to follow. It fills a research gap in assessing the associations between extreme temperatures and morbidity for people with comorbid health conditions. The research findings are useful for local government to build public health policy. However, there are still some issues need to be addressed.

Major Compulsory Revisions
1. Abstract
   Methods: “estimated using distributed lag non-linear Poisson regression models” should be “using a Poisson regression model with distributed lag non-linear model”.

2. Introduction
   The introduction seems to be short. The authors are better to describe what have done in Canada, and summarise if previous studies have done similar study worldwide.

3. Methods
   It is better to plot the lag structure, so the readers are easy to understand why there are significant effects at short lags but not long lags for hot effect. Maybe put the figures to appendix.

As some subgroups have very limited counts, the reviewer suggest use case-only study to examine which subgroup is at greater risk, using multi-logistic regression with distributed lag non-linear model. This part could be put to the appendix, but it is very useful to assess which group is more sensitive to the effects of extreme temperatures.

Minor Essential Revisions
1. Tables
   As table 1 showing, there are some missing values for O3 and CO. The reviewer suggests interpolate the missing values by the mean of previous and following days' concentration.

Table 2: 3109 should be 3,109.
Table 3 and table 4 can be structured into one table.
Table 5 and table 6 can be structured into one table.

2. Reference
Citation 22 and 14 are the same paper. Please change 14 to “The Impact of Temperature on Mortality in Tianjin, China: A Case-Crossover Design with a Distributed Lag Nonlinear Model”.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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

Declaration of competing interests:
I declare that I have no competing interests