Reviewer's report

Title: A big temperature decrease between two neighbouring days may increase the risk of childhood pneumonia

Version: 2
Date: 16 April 2014
Reviewer: Wan Yang

Reviewer's report:

I have some further comments and suggestions.

Major Compulsory Revisions:

1. Authors need to compare the two data sets: 2001-2006 vs. 2006-2010 EXCLUDING 2009, rather than as shown Figure 7 right panel, which still includes the confounding 2009 spike. Authors stated they did a sensitivity test on this, yet they did not present results in the manuscript, other than showing the analysis on 2001-2010 excluding 2009 (Figure 8). Whether the impact of TCN during 2006-2010 indeed increased significantly compared to 2001-2005 is not shown. Based on Figures 8 and Figure 7 left panel, I don't think there is an increase if the 2009 spike is removed. Authors should modify their statements accordingly.

2. Further, authors argued that big TCN might contribute to the 2009 pneumonia spike. They did not show any evidence for this statement; if this was true, authors should at least show that days with big TCN increased during the 2009 pneumonia spike.

3. In Figure 6, authors showed that, in summer, the relative risk of pediatric pneumonia increased dramatically as TCN>0°C. What leads to such increased relative risk?

4. Correlation does not imply causation. Authors need to tone down their statements in places. For instance, page 6, lines 3-4 and page 7 lines 17-19 (see comment 2). Another one is on page 6 lines 16-18. I don't think this is true. Pneumonia has a seasonality with a peak in winter, many factors contribute to that seasonality—better survival of viruses/bacteria, crowding in winter facilitating transmission, seasonal fluctuation in immune strength, etc.

5. The manuscript is still very rough; it needs further editing. For example, in the method section, ‘Data analysis’, after explaining the principle of DLNM, authors could state why DLNM is suitable for this study. They could move the text in page 4 lines 13-16 to right after page 3 lines 25-27. Similar for other parts of the manuscript.

The results and discussion sections need more work. The results section could be more organized; it should tell a story, not just list the findings. The discussion section could be more succinct and analytical. Some parts read like hand-waving speculations. For example, page 6, lines 21-32. More importantly, do not
overstate your findings (see comment 4).

I understand the urge to report exciting findings; however, it is always worthwhile to revise your manuscript critically at least a dozen times. It will be helpful to put it aside for a few days and then look at it with fresh eyes.

Minor Essential Revisions:
(1) The equation on page 4, line 1-2 is still confusing. Write the equation for DTR and TCN separately, or use a dummy variable for the two metrics then state that dummy variable is either DTR or TCN.

**Level of interest:** An article of importance in its field

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

**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 interests