Reviewer's report

Title: Space-time clustering of childhood central nervous system tumours in Yorkshire, UK

Version: 1 Date: 31 October 2011

Reviewer: Michael Scheurer

Reviewer's report:

The authors present a well-written report on their assessment of space-time clustering of pediatric CNS tumors in Yorkshire, UK. The analyses are solid, however, it is unclear how their central hypothesis of an infectious agent is supported by the results of this analysis.

Major Compulsory Revisions

1. The primary hypothesis that the authors posit (i.e., that an infectious agent is responsible for the clustering that they reported) is not clearly supported by the findings of this analysis. On page 17 you state that it is "unclear whether the clustering was driven by a geostationary or an infective process." You then state, in the next paragraph, "The finding of space-time clustering from the present study is consistent with a transient aetiological agent, such as an infection." This needs to be clarified throughout the manuscript, in particular, in the discussion. Could the clustering be due to pollution or to some factor related to socioeconomic position? What alternative hypotheses could also account for the clustering you see?

2. Most of the significant findings are based on the K-function method rather than the nearest neighbor (NN) method. However, you state that the NN method gives the more accurate results. This should be clarified for the reader and expanded in the discussion as to why the two methods are providing discrepant results. How does this impact your interpretation of the results?

Minor Essential Revisions

1. Clarify which benign CNS tumors were included in the analysis as described at the bottom of page 6. Are all CNS tumors captured in the ICCC IIIa-f codes?

2. It would help the reader to state up front that the analysis is based on both the address at birth and the address at diagnosis.

3. Why was the "less densely populated" vs. "more densely populated" distinction made based on a 50/50 split in the data? Would this be more appropriately categorized based on the address and the geography at that address? This is unclear in the current version of the manuscript.

4. At the bottom of page 11, you describe 3 possible space-time interactions. However, wouldn't the interaction of "time at birth and place at diagnosis" also be a possibility? Why what this interaction not examined?
Level of interest: An article of importance in its field

Quality of written English: Acceptable

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.