

Reviewer's report

Title: Health Effects of Low Level Exposure to Ambient Air Pollution

Version: 1 **Date:** 11 February 2008

Reviewer: Kristie Ebi

Reviewer's report:

Major Compulsory Revisions

1. This manuscript needs additional work to achieve its goal of reviewing recent publications that estimate the health effects of low-level exposure to ambient air pollution. Such a publication would be a welcome addition to the literature.
2. The authors need to provide the criteria by which papers were chosen for review. Without this information, it is unclear why particular papers are included.
3. The manuscript would benefit from moving much of the description of studies into a table providing basic information about each study and its results. This would allow easy comparison of study results for particular concentrations of various air pollutants, as well as comparison of lags, mortality displacement, etc.
4. The manuscript has a large number of statements that need quantification. For example, on page 6, the statement that the results show that air pollution arising from common emissions sources was significantly associated with cardiovascular health outcomes in the elderly. At least the RR should be reported so readers can decide themselves whether the results are significant. Or, on page 11, stating that some studies have used Bayesian model averaging, without reporting the results. Readers want to know key results.
5. The abstract and introduction to the paper discuss regulations in a way that suggests the manuscript will address the adequacy of current regulations, leaving the reader disappointed that such an evaluation does not take place. Either this discussion should be included, or the abstract and introduction reframed.

6. The section on current methodological issues is not well developed. This section should either be expanded, with further discussion, or dropped. For example, the subsection on lags is not particularly informative. What have been the range of lags? Are there lags that are most often associated with adverse health outcomes? Are there long lags where adverse health outcomes are no longer reported?

What is the authors' assessment of which lags should be included in future studies? Why? Similar questions should be addressed for thresholds and mortality displacement.

Minor Essential Revisions

7. Note that although everyone is susceptible to high concentrations of air pollutants, concentrations are not evenly distributed across populations.

8. Note that the Authors' Contributions mention the role of Dr. Williams, although Dr. Williams is not on the list of authors.

What next?: Accept after minor essential revisions

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.