Reviewer’s report

Title: Association of PM2.5 concentration with health center outpatient visits for respiratory diseases of children under 5 years old in Lima, Peru

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Reviewer: Antonio Ponce de Leon

Reviewer's report:

The aim of this article is welcome, since there is a great need for more studies concerning acute air pollution effects on morbidity conducted in Latin America, especially those focusing on children respiratory health and/or in Peru. Lima, Peru is a major Latin American metropolitan region with a comprehensive air pollution network, thus it is an interesting place for studies on air pollution and health. The article describes a time series analysis based on weekly data on the health outcome and exposure to air pollution. There are two issues related to this analysis that I find worthy of discussion. The first is the choice of weekly data. I do understand that the outcome time series was available only weekly, thus daily analysis was not feasible. Even though the authors raised the study limitation in the article's discussion it should be noted that its results are not directly comparable to other studies based on daily data. The second issue is related to the model design. The authors have regarded local exposure to air pollution whilst two covariates were assigned to exposure, namely PM2.5 exposure and a dummy variable for each district, however the outcome variable is the sum of health events over the set of districts. In my opinion, the correct model design would be a panel study model, whereby each district would be analyzed with respect to its own exposure assessed the same way as it has been described. I do understand that under this proposed model there may be an excess of zeroes, which could cause even more overdispersion. Nevertheless, I think that such a model should be considered by the authors, even as a strategy for sensitivity analysis.

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An article whose findings are important to those with closely related research interests

Quality of written English

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Not suitable for publication unless extensively edited
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