Reviewer’s report

Title: Fraction of exhaled nitric oxide after experimental exposure to diesel exhaust or ozone

Version: 1 Date: 12 March 2013

Reviewer: John Balmes

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GENERAL COMMENTS

No previous controlled human exposure studies of the effect of diesel exhaust on FeNO have been reported. The effect of ozone on FeNO has been previously studies, including by the Umea group, but not at variable flow rates that allow assessment of differential airway-lung compartment responses.

The methods are appropriate and well described.

MAJOR COMPULSORY REVISIONS

There were instrument problems with 8 of 18 subjects in the diesel exhaust component of the study such that data for only 10 subjects were available for analysis. Why? And why were there no such problems for the two ozone study groups?

A limitation is the small sample size for the diesel exhaust component of the study. While the authors acknowledge that this potentially limited their power to detect effects of diesel exhaust on FeNO at the higher flow rates, it is equally possible that the significant effects at the two lower flow rates were due to chance alone. The authors should address the possibility of a type 1 as well as a type 2 error.

One problem lies with the Introduction. The second paragraph, which is intended to provide background information from the literature, should be improved. While an appropriate review paper (ref. 4) is cited for the association of ambient PM with cardiopulmonary mortality, the two references (5 and 6) cited for ozone are for individual studies that do not cover the gamut of ozone-related health effects. Furthermore, while no range of exposure concentrations is given for PM, a range of concentrations is given for ozone. Giving such a range is too much detail for a background section of a controlled human exposure study report. Indeed, giving such a range calls into question why an order of magnitude higher concentration was used in this study. Finally, ref. 7 showed an effect of ozone on lung function in addition to an effect of PM.

Another problem is with the Discussion. Although the authors cite the first controlled human exposure study to investigate the effects of ozone on FeNO (ref. 20), they fail to discuss it. Instead of two previous studies that showed no
effect of ozone on FeNO, there are actually three such studies.

MINOR ESSENTIAL REVISIONS

Overall, the writing is acceptable, although there are some problems with English syntax.

Level of interest: An article whose findings are important to those with closely related research interests

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 have no financial or non-financial competing interests.