Author's response to reviews

Title: Air pollution in Boston bars before and after a smoking ban

Authors:

James L. Repace (repace@comcast.net)
James N. Hyde (james.hyde@tufts.edu)
Doug Brugge (doug.brugge@tufts.edu)

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Response to Reviewers’ Comments

Revision: MS: 1013153601018112, BioMed Central

Title: Air Pollution in Boston Bars Before and After a Smoking Ban

Authors: James Repace, James Hyde, Doug Brugge

Tufts University School of Medicine

General Reply by Authors: We are grateful to Dr. van Tongeren for her further comments, which we have helped us to revise and further improve our manuscript. All figures and tables remain unchanged, although the figure captions have been removed in the uploaded versions and placed in the text as instructed.

Reviewer: Martie van Tongeren
Reviewer's report:

Dr. Van Tongeren:

General
The paper has been improved since the last version, although I suggest that the Junker method for odor and irritation score and its results are described in the Method and Results sections. Similarly, the methods for estimating ventilation and exchange rates should be described in the methods and results described in the Result section. Accept after minor essential revisions.

General Reply by Authors: We have made the requested essential revisions, which indeed improve the MS, and thank Dr. Van Tongeren for her close and painstaking reading of the MS, and extremely helpful suggestions for improvements.

Dr. Van Tongeren:
Discretionary Revisions (which the author can choose to ignore)
(1) The correlation between the estimated air exchange rates and ventilation rates seems to be very poor. Why is this?

Reply by Authors:
In general the ventilation rate for removal of CO₂ may be different from the air exchange rate for SHS removal φ for several reasons: first, because the air exchange rate includes surface sorption and air filtration effects which enhance the air exchange rate; second the ventilation rate as determined by CO₂ will overestimate the actual ventilation rate if equilibrium is not obtained; the CO₂ will underestimate the actual ventilation rate if the outdoor background measured is different from the actual indoor CO₂ background, and thirdly, the actual CO₂ emission rate per occupant is effected by occupant activity, and
finally, the ventilation rate per occupant is not coupled to smoker density.

(2) Why are the air exchange rates estimated based upon the estimated prevalence of exposure, whilst you have the actual figures for these pubs?

Reply by Authors: We estimate default air exchange rate for a typical bar at maximum occupancy to see if the pubs are ventilated according to code, which as it turns out, they are not, which we determine from the air exchange rates actually calculated from the data, and as a further check, compare the ventilation rates calculated from CO₂.