Reviewer's report

Title: Persistent Chlamydia Pneumoniae serology is related to decline in lung function in women but not in men

Version: 2 Date: 25 May 2010

Reviewer: Douglas Mapel

Reviewer's report:

The strengths of this article are that it is well written and the topic is of broad interest.

The weakness is that the analysis methods are not very transparent.

Major Concerns

The construction of the multi-linear equations used in the analysis is unclear. The authors should keep in mind that their methods should be described with enough detail so that someone else could reproduce them accurately. As currently written, it is not clear what the dependent variable was. Was it the change in lung function (#FEV1 or #FVC) or was it the lung function on the follow-up visit? I recommend that the authors include the full statistical formula in either the methods section or in the legend of the tables where the model results are presented.

The choice of whether to base the analysis on the change of lung function over the study period versus just the lung function at the time of the follow-up visit is very important. Table 2 suggests that the dependent variable was change in lung function, but it is not clear. I would prefer the change in lung function over time as the dependent variable, but keep in mind that most studies of exposure effects are based on cross-sectional analyses with only one lung function assessment. In those studies the estimated change in FEV1 per pack-year of cigarette exposure typically ranges from 30-60 mL/year. It is interesting that this analysis finds a very small estimated change, only 1.6 to 2.1 mL per 10 years, which is unbelievably small. It would be useful to conduct an additional analysis that estimates the lung function at the follow-up study to see of the change estimates are more consistent with other analyses of the effects of smoking on lung function.

It is not clear to me why the authors are using the BMI instead of just the height and weight. Most predictive equations are based on just height and age, and occasionally weight will also be a significant contributing factor. Table 2 is based on height squared, weight, and then height again. Unless you can demonstrate that the relationship between lung function and height fits some function other than linear, you should assume the relationship is linear and adjust for height only once. I recommend simplifying the analysis and just using height at baseline if change in lung function is analyzed or height at follow-up if the cross-sectional
approach is used, and weight change during the study interval. Also, the effect estimates for age need to be included in the table.

Minor Concerns

Table 2 includes C pn only at follow-up, C pn only at baseline, and C pn at both. What about no C pn at either visit? Fig 2 also ignores ‘double negative’ C pn.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests