Reviewer's report

Title: A population-based cohort study of chest x-ray screening in smokers: Lung cancer detection findings and follow-up

Version: 1 Date: 7 September 2011

Reviewer: Paul Pinsky

Reviewer's report:

This manuscript presents interesting data relating to characteristics of lung cancers by mode of detection. The study design is a bit complex but adequately described. The data and statistical analysis is generally sound.

Major Changes

1. With respect to VDT, where a median of 80 days was reported, please specify how many cases this was calculated for. Was it calculated for all non-baseline screen detected cases (meaning that the lesion was always evident at the prior screen)? Please give more details of the distribution of VDT. Even if median was 80 days, this does not imply no overdiagnosis since a significant fraction could still have had very large VDTs.

2. The authors should statistically compare the survival of non-participants versus controls. This would help to address whether the control group is appropriate for the cohort, since neither group (control nor non-participants) is affected by screening. Of course, non-participants may have some selection bias (since they did not select to participate), but it would be nice to know that the groups' survival are similar.

3. In Table 2, there is a row for “asymptomatic LC diagnosis”. Other than the screen detected cases, how was this determined (e.g., chart review, self report)? Were these by screening or some other method?

Discretionary Changes

1. It would be useful to show the total number of person years at risk for lung cancer in the participants and non-participants. That way, a lung cancer rate could be calculated in each group. This is important to assess possible over-diagnosis, which of course affects survival.

2. It would be of interest to see if survival within stage (say stage I) is different for the screen detected versus the others (participant non-screen detected, non-participant, control).

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.