Reviewer’s report

Title: Impact of positive chest X-ray findings and blood cultures on adverse outcomes following hospitalized pneumococcal lower respiratory tract infection: A population-based cohort study

Version: 3 Date: 4 March 2013

Reviewer: dan wootton

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Minor essential revisions

1. I do not believe reference 16 supports the assertions made in the text. This was a study investigating associations between of CT findings and clinical findings within the context of usual interstitial pneumonia (UIP). UIP is a histological diagnosis associated with characteristic CT appearances and occurs most frequently in the context of idiopathic pulmonary fibrosis (IPF). It is an entirely different thing to pneumonia caused by the pneumococcus and I don’t think comparisons are valid. An alternative reference should be provided.

2. I would like to be reassured that all subjects in the study were actually treated for a pneumococcal LRTI. In the methods section towards the end of the paragraph 'study population' it is suggested that some patients would have entered the study even though they were not coded as having a LRTI (i.e. they may have had either symptoms or a positive CXR). If a patient was not regarded by the hospital as having a LRTI were they actually treated as such - if some subjects were treated and some were not treated for LRTI would be expected to influence the outcome. The fact that only 55% of subjects in the nPnB group received antibiotics on the first day of their admission makes me even more keen to know that they did actually receive some antibiotics at some point.

Discretionary revisions

I would like to see a consort style flow chart to make it clearer who was excluded from the analysis and why. I found this difficult to extract from the 'study population' section.

It would add strength to this paper if all the chest x-rays were reviewed by a panel of two readers to determine if they were felt to be consistent with pneumonia or not. In the current situation the assignment to the groups nPnB or PnB is based on the subjective reports from multiple readers and will be subject to a great deal of inter-reader variation. Inconsistency of interpretation of CXRs in the context of pneumonia is well reported http://thorax.bmj.com/content/66/Suppl_4/A169.3

I would like to see the 'B' group (blood culture positive group) split into PB (CXR defined pneumonia and a positive blood culture) and nPB (no pneumonia but a positive blood culture) – perhaps the worst scenario of all is that where little local
reaction occurs, meaning a complete failure to contain the pathogen in the lung and the pneumococcus simply spills straight into the blood. In the current situation it looks like all patients in B are assumed to have P also.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests