Reviewer's report

Title: Pharmacotherapy and the risk for community-acquired pneumonia: A case-control study of hospitalized older adults

Version: 1 Date: 9 December 2009

Reviewer: Graziano Onder

Reviewer's report:

1. Is the question posed by the authors well defined? Yes
2. Are the methods appropriate and well described? No
3. Are the data sound? Yes
4. Does the manuscript adhere to the relevant standards for reporting and data deposition? Yes
5. Are the discussion and conclusions well balanced and adequately supported by the data? No
6. Are limitations of the work clearly stated? No
7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished? Yes
8. Do the title and abstract accurately convey what has been found? Yes
9. Is the writing acceptable? Yes

- Major Compulsory Revisions

1. Assessment of medication use before admission was based on self report. This may be a potential problem, given the fact that patients admitted to hospital may have cognitive problems and this may lead to an underreport of medication use. Another issue is the risk of recall bias: those with pneumonia may be more likely to recall pneumological drugs rather than controls;

2. Cases seem sicker than controls (they have more disease and use more drugs). This raises the question on how the selection of controls was performed. Were controls cases from the same hospital and from the same wards as cases?

3. Which were the most common causes for hospitalization among controls? There may be a bias related to causes of hospitalization (i.e. if controls are hospitalized for GI bleeding or GI problems, it is not possible to assess the effect of PPI);

4. Data on cognitive status are not presented. This may be an important confounder in the analysis and, again, patients with cognitive problems may have difficulty in recalling drug data;

5. Why the variable for anticholinergic bronchodilator was not entered in the final model? It seems that the use of any inhaled drug is associated with increased risk of pneumonia (alpha 2 agonist, corticosteroid and anticholinergic drugs). This may raise the issue of confounding by indication. Therefore, it may be reassuring to show that the effect on pneumonia is limited to anticholinergic drugs and not extended to all inhaled drugs;

6. Same for antipsychotics. It may be reassuring to see a 3 level variable including also typical antipsychotics (no antipsychotics, atypical, typical) to show
that the effect on pneumonia is limited to atypical antipsychotics.