Reviewer's report

Title: A decision aid to rule-out pneumonia and reduce unnecessary prescriptions of antibiotics in primary care patients with cough and fever

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Reviewer: Lars Bjerrum

Reviewer's report:

This is a well written paper that concerns an important issue in general practice.

The aim of the study was to developed a diagnostic aid, based on clinical signs combined with CRP to rule-out pneumonia in patients with symptoms and signs of lower respiratory tract infections (cough and fever) and thereby reduce the rate of inappropriate antibiotic prescriptions.

The authors used a prospective cohort design and included 621 consecutive patients >18 year with a new episode of cough and fever. After medical taking history and physical examination a CRP test was performed and all patients were examined with chest X-ray.

In patients with CRP < 10 or patients with CRP between 11 and 50, but without dyspnea and daily fever, pneumonia could be ruled out, eg. no patient with pneumonia would be misclassified by this rule. By applying this rule antibiotic prescription could be reduced by 9.1 %.

Minor essential revisions:
Antibiotics were prescribed to 355 (57%) of all patients enrolled (n=621).
Radiographic signs for pneumonia were present in 127 (20.5%) of patients.
All but four patients with pneumonia (N:127-4=123) and 234 (38%) of patients without radiological signs of pneumonia got a prescription for antibiotics.

If we add these two groups it sums up to 357, which is different from the total number of patients treated with antibiotics. This should be adjusted before publication.

A surprisingly high percentage of the enrolled patients suffered from X-ray confirmed pneumonia, which correspond to the rather long duration of cough (7 days) before contact to the GP. It may affect the validity of the prediction rule if the severity of infections among the included patients changes. This merits some comments in the discussion.

As the authors write, the prediction rule that is presented should be validated in a new set of patients from general practice.

Quality of written English: Acceptable
**Statistical review**: Yes, but I do not feel adequately qualified to assess the statistics.