Reviewer's report

Title: Patients Presenting to the Hospital with MRSA Pneumonia: Differentiating Characteristics and Outcomes with Empiric Treatment

Version: 1  Date: 10 March 2014  
Reviewer: Rupak Datta

Reviewer's report:

Thank you for the opportunity to review this important work. The authors studied over 1,600 patients at a single hospital with potential pneumonia to identify the clinical and epidemiologic characteristics of MRSA pneumonia, evaluate the utility of the Shorr scoring system in detecting patients at risk for MRSA, and assess outcomes following empiric anti-MRSA therapy. The authors conclude that patients with MRSA pneumonia have greater severity of illness when compared to patients with non-MRSA pneumonia, the Shorr scoring system has high sensitivity but poor specificity, and empiric therapy has minimal impact on clinical outcomes. While this study is a valuable contribution to literature, it may benefit from the suggested edits below.

Major Compulsory Revisions

1. Please provide more detail regarding the Shorr scoring system in the introduction. Since the authors are so heavily reliant on this index, readers may benefit from viewing the specific criteria used (i.e., the eight variables).

2. One limitation is the use of older CDC criteria for pneumonia. Understandably, the authors may have completed data collection and analysis prior to the release of these criteria. However, the authors could comment on any changes between the the criteria used and the updated criteria (http://www.cdc.gov/nhsn/pdfs/pscmanual/17pscnosinfdef_current.pdf) and whether these criteria (starting on page 17-31) may have impacted their findings.

3. Limited information is provided regarding the selection of control patients. This is important because improper control selection may introduce bias. Did this group have the same inclusion criteria? If so, were they selected from the 311 patients that were remaining after 1,615 patients were screened? This group also contained patients with negative cultures. Does this imply some patients had viral pneumonia? Were CDC criteria applied to this group as well?

4. Please specify the causes of pneumonia in the non-MRSA group.

5. Please specify what fraction/number of the 1,615 patients with ICD9 codes met CDC criteria for pneumonia. Of the 311 patients meeting inclusion criteria, did 134 meet CDC criteria for infection?

6. Please clarify the term prior antibiotic exposure. There is no indication in the
methods or results as to which antibiotics or antibiotic classes were assessed.

7. For what time periods were empiric therapy and subsequent antibiotic exposures assessed (duration of hospitalization, 30 days, etc.)?

8. Based on Table 1, it appears each specific subgroup was compared for categorical variables. This may introduce statistical significance by chance through multiple comparisons. Please comment or consider retesting as a categorical variable.

9. Please comment briefly on the sensitivity and specificity of the ICD9 codes for pneumonia. Please also comment on whether ICD9 codes for pneumonia changed over the 2005-2011 period.

Minor Essential Revisions

1. Only 134 patients were identified after screening over 1,600 patients with ICD9 codes for pneumonia. For clarity, the abstract should indicate that 134 MRSA-patients were compared to 134 patients with non-MRSA or culture-negative pneumonia, rather than reporting 268 patients. That latter may be misleading to readers quickly reviewing the paper.

Discretionary Revisions

1. Please provide the city and state of the study hospital. (i.e., 625-bed community-teaching hospital in Huntington Beach, California.)

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.