Reviewer's report

Title: Empiric antibiotic duration and other potential factors mediating the effect of a checklist prompting intervention on mortality: an exploratory analysis

Version: 1 Date: 17 May 2012

Reviewer: Tari Turner

Reviewer's report:

Thank you for the opportunity to review this manuscript. The authors report on a single site, short-term investigation of the role of prompting to address issues on a daily rounding checklist; and particularly to further investigate the impact of empirical antibiotics, mechanical ventilation and central venous catheter duration as mediators of the impact of the prompting on mortality.

The study is timely and interesting, as checklists are currently extensively promoted, and prompting may have substantial impacts on the effectiveness of checklists. The manuscript is clearly written.

On the basis of the information provided in this manuscript the study is, however, significantly limited. The comparison of prompted and unprompted care is likely to be confounded by the fact that the prompted and unprompted teams may have had different practice patterns aside from the checklist. As a result, the difference in outcome being attributed to prompting, might in fact be due to other practice factors which have not been accounted for. This issue needs to be actively addressed in the manuscript.

Discretionary Revisions
1. Consider mentioning mechanical ventilation, and central venous catheter duration in the Title as these are key components of this study
2. It might be useful to define ‘empiric’ in the Background

Minor Essential Revisions
1. In the Background, edit statements such as “The intervention improved several processes of care that may have contributed to these benefits, including reduced empiric antibiotic utilization” and “prompting also reduced central venous catheter duration and increased ventilator-free days” to reflect tentative nature of the findings given they are from one small, single site study.

Major Compulsory Revisions
1. Methods – more information is needed to understand the extent to which opportunity for bias has been avoided.
   a. Please explain how/whether underlying differences in the practice patterns of the two MICU teams were examined and accounted for
   b. Was retrospective calculation of APACHE score blind to intervention group?
c. Was the analysis reported in this manuscript planned a priori or post hoc?
d. Did statistical analysis correct for clustering?
e. How was “increased rate of liberation from mechanical ventilation” defined?

2. Results
   a. Please describe how/whether different practice patterns of MICU teams impacted on the results of the analysis
   b. For what proportion of rounds was the prompter present? This is important for generalizability.
   c. Was the distribution of the patients who received empiric antibiotics and those who had CVCs even between the two MICU teams?
   d. Mechanical ventilation
      i. Please reword “median ventilator-free days in the first 28 days increased to 22 days in the prompted group compared to 16 days in the control group” to remove “increased” as this is confusing. Also please include an indication of the statistical significance of this result.
      ii. “A greater percentage of patients in the prompted group were liberated from mechanical ventilation while in the ICU compared to the control group, but this difference was not statistically significant” – this is overly positive, give the non-statistically significant results. Consider rewording.
      iii. Use of both percentages and ORs is confusing; perhaps use just one.
   e. CVCs - please point out that in neither model was the mortality reduction statistically significant

3. Discussion
   a. Please discuss how/whether different practice patterns of MICU teams were explored and accounted for, and include this as a key limitation of the study
   b. The authors note that there is a “large, unexplained effect of prompting on mortality” please provide evidence that this is not due to different practice patterns between prompted and unprompted MICU teams

**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