Reviewer's report

Title: The impact of adverse events in the intensive care unit on hospital mortality and length of stay

Version: 2 Date: 11 November 2008

Reviewer: Ryan Lennon

Reviewer's report:

General
The manuscript is much improved. I appreciate the authors’ numerous edits and diligent consideration of reviewer comments. I have a few lingering concerns with the manuscript.

Major Compulsive
1) As I understand it, the authors calculated expected length of stay for two hypothetical patients. One patient had a median covariate profile and did not have an AE. The other also had a median covariate profile, but did have an AE (presumably at time 0). The estimate of 20 additional days in the hospital is dependent, however, on the patient risk profile. In sicker patients the difference in medians will be more than 20 days, in healthier patients the difference will be less than 20 days. So this estimate of a 20 day increase in hospital stay is based on an arbitrary choice of hypothetical patients.

My original suggestion was to do the following:
"It might be better to take the 40 patients and estimate their expected median LOS according to the model under the condition that an AE never occurred, and compare this to the observed median."
So the COVARIATES data set used in the baseline statement would be the AE group with their covariates unaltered, but AE would be set to zero. From the 40 resulting estimated survival curves, the overall survival curve is obtained by taking the mean survival at each time point. This curve can then be compared to the raw LOS curve for the 40 patients with an AE.

2) Figure 1 then I think is not so useful, again because it represents the distributions for a very specific patient profile. It would be
better to show the unadjusted LOS distributions for patients with and without an AE, and then the adjusted LOS distribution for patients with an AE (assuming they did not have one as in the paragraph above) could be added. Either way, (a) Figure 1 needs a legend and (b) a summary of the raw LOS data needs to be reported somewhere (in a plot or table or the text).

Minor Essential
<none>

Discretionary
<none>

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

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests