Reviewer's report

Title: Hospital staff education on severe sepsis/septic shock and hospital mortality: An original hypothesis

Version: 2 Date: 31 July 2012

Reviewer: Flavia Machado

Reviewer's report:

The manuscript improved with the authors' modifications. The addition of tables 1 and 2, figure 1 and 2 clarified some points and gave information that was not available in the first version. However, this new information also raised new issues.

Major compulsory revisions

1. In the Results 2nd paragraph (and also in the discussion) you stated: "Age, Charlson index, and percentages of males and of urgent admissions were lower in the period before education than in the other periods. Length of stay in hospital showed a gradual decrease over time. Please clarify, as data does not suggest a significant difference. Please add p values on table 2. Moreover, if it is true that age and comorbidities increased in the after training period, this would have contributed to increase mortality not to decrease it.

2. As a consequence of this potential equivalence between periods regarding these four variables, it would be nice to have also the unadjusted mortality.

3. In the statistical section authors stated "We excluded data regarding the two months before and after this period in order to include all the patients with known outcomes present in hospital every month, and for each month we computed the mortality for the patients present in the hospital in that month." I still don't understand why the months of September and October were withdrawn from the analysis. It seems arbitrary as you do have data on mortality available until October 2009, even if not for a few of the patients. Does the addition of these 2 months will change the linear trend for decreased mortality and the relative risk along the first and second period? The linear trend in figure 2 seems highly influenced by the drop in mortality on August 2009. Although the drop in mortality after the initial training phase is supported by the 25% of training, it would be difficult to explain that a mortality significantly reduced when the percentage of educated staff increased from 25 to 30%, as I already stated in my previous comments. Please report the results with September and October and the number of patients for whom mortality is not available in these two months.

4. Figure 2 also suggests that mortality started to drop on August and not October 2007. And we are aware that any intervention usually have a delay in its impact on outcome. Thus, do the authors have an explanation for this drop in mortality BEFORE the intervention started?
5. Discussion

5.1 The writing of the third paragraph could be improved. What do you mean with first, second and third? Are these the reasons to justify your finding of decreased mortality, to justify why training only 30% of the staff had results in changes?

5.2 As many of the issues raised in my first comments were not properly solved, I strongly suggest authors to emphasize them in the new limitations paragraph:

a. Limited information to characterize the population, as all adjustments were done only using four variables

b. No data about the compliance with treatment guidelines or any type of performance measurement to indicate training really results in change in sepsis bundles or in any other quality indicators. I respectfully disagree with the authors when they cited Ferrer study to justify that this is not a relevant information. To address quality indicators is relevant to justify any outcome measurement.

c. Although the authors argued in favor of keeping in the analysis data from 2003, I am not convinced that this is not a source of bias. So, this should be add as a potential limitation as it could have compromise the ability to associate the reduction in mortality with your intervention, even with the adjusted analysis.

d. 30% of training still seems a low target which still compromise the ability to associate training with mortality reduction.

Minor essential revisions

Table 2 - The numbers of patients, male patients and urgent admissions can not be reported with decimals, please correct the mistake.

The conclusion in summary should be change to a more appropriate one, as in the text.

Level of interest: An article of importance in its field

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