Reviewer’s report

Title: Ensemble-based methods for forecasting census in hospital units

Version: 2 Date: 7 February 2013

Reviewer: Enrique Casalino

Reviewer’s report:

Thank you for this interesting piece of work. I agree that forecasting hospital activity is important in terms of planning and provision and that current methods are not enough performant.

Major Compulsory Revisions

The new proposed method seems a useful one, and your approach, including patients severity level, is very interesting. However, it is not clear to me if you compared your method to another validated or currently used method for forecasting. If the objective is to validate this new method, is it necessary to compare your new method to previously reported methods.

If you consider that short term forecasting (1 to 7 days) is enough, you must precise this in the paper, some previously published data reported longer forecasting periods.

Minor Essential Revisions

Background section is well presented and documented.

Methods section

The mathematical presentation of the proposed method is too long, it seem to be be carefully and expertly tailored, although I am not knowledgable enough in this field to endorse them completely.

Patients population was 1001 consecutive NICU admissions from 200 to 2009. In page 10, "2660 consecutive admissions from 2008 to 2010"... This is another data or you used only a part of these data?

Discussion section is clearly presented. I agree with your conclusions. You not included LOS patients LOS in your model. I am convinced that your approach is interesting and innovative, however I believe that wee need a comparison with the models using LOS.

Some limitations must be discussed: seasonnal impact, beds availability, differences with queying methods,...

Conclusion section is very nice!

Discretionnary Revisions

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