Reviewer's report

Title: Hospital-level associations with 30-day patient mortality after cardiac surgery: a comparison of the application and interpretation of conventional, marginal and multilevel logistic regression

Version: 1 Date: 22 May 2011

Reviewer: Juan Merlo

Reviewer's report:

This is relevant manuscript that provides a modern approach to the interpretation of hospital level effects. It has a clear pedagogical and popular approach, which I think is worthy since the concepts used by the authors are relatively new and needs be more extensively applied.

However, the authors should try to perform a more extended review of the literature of published articles in order to correctly place their work within all the published work. I would like to see a large number of references to the work other authors and – if appropriate – repetition of these references within the main text.

The interpretation of measures of heterogeneity (e.g., MOR) and clustering (i.e., ICC) is really considered in the study but need be expanded. In fact the substantive interpretation of ICC vs MOR does not differ so much since both measures are based on the same variance value.

In this context, I will include an explanation on the GEE-ALR that provides the pairwise odds ratio measure: a worthy measure for measuring and interpreting clustering.

The pedagogical and popular approach of the study need be stressed... even in the title

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