**Reviewer's report**

**Title:** A predictive model for the early identification of patients at risk for a prolonged intensive care unit length of stay

**Version:** 2  **Date:** 22 February 2010

**Reviewer:** Graeme K Hart

**Reviewer's report:**

As expected of paper by two experienced senior authors it is well written and concise. The data presented is appropriate to the objectives and the conclusions remain circumspect and appropriate to the strength of the data model.

The question addressed in the paper has relevance to international critical care practice although the remedies available to clinicians in non US environments may be less as the (authors acknowledge) long stay ventilation units are not widely available outside the US.

**Minor Essential Revisions:**

1. Methods and statistics are generally appropriate however:

   13 % of patients are derived from coronary care units. These patients would not be considered part of an intensive care cohort in many countries. They usually have low length of stay – how many remain in the model and could this cohort have reasonably been excluded a priori?

2. In a study specifically of long stay patients is it really appropriate to remove the extreme outlier tail as described para 3 page 7? There may be great value in identifying factors contributing to such extreme ICU resource utilisation (although numbers would be small)

3. Informed consent: Given that Cerner now owns the data (or at least the process collecting the data), a statement regarding the governance of the stored information seems appropriate. The institutional Review approval cited relates to the 1991 Apache 3 paper. Do the IRB waivers extend for 20 years, completely new patients data, and a change in the governance model of the data. ??

   Although de-identified, collected as routine process of care data and with high level aggregation, this would not be permissible in many jurisdictions. Additional explanation would assist in the debate currently existing in many countries regarding the use of such data in systematic quality assurance and epidemiological research. This can be quite problematic when large numbers of ethical submissions need to be processed for each project using such data.

4. Table 1 What does column 3 "reference group (if applicable)" mean. Are patient groups in this column excluded??

**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 am chair of the ANZICS CORE Management Committee that undertakes similar QA activities and outcomes research in Australia and New Zealand