Reviewer's report

Title: The impact of ICU format change on the outcome of high risk surgical patients: a cohort analysis

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Reviewer: Charles Vincent

Reviewer's report:

This paper reports a study of the change from open to closed format ICU comparing patients admitted 1996-1998 (open format) with those admitted (2003-2005). While risk stratification scores of the later group of patients are higher, patients in the later cohort had reduced mortality although similar morbidity. The authors conclude that closed format is superior to open format.

The impact of a shift from open to closed format and is clearly an important issue with potential implications for ICU admission and care in other settings. The data collected from a prospective data base are reliable and important.

The main difficulty with the paper lies in the interpretation of the data and the fact that the authors simply accept without questioning that the observed change is due to the change from open to closed format. While I understand that it would not be wise to assess the impact of a change in format immediately after the change was made, the long interval between the periods of data collection makes it difficult to link the observed change was to the format change. These two groups of patients were admitted 7 years apart. Presumably there were many changes both within and external to ICU in that time which might have at least in part accounted for the observed changes in mortality, but these are barely discussed.

These difficulties are compounded by the fact that the paper appears hastily written, parts of it are in note form and the authors have not set out a convincing or consistent argument for their observations. For instance the changes in mortality and morbidity are variously attributed to changes in admissions policies, the presence of intensivists in ICU and other factors but these various strands are never integrated into a convincing argument. It would also help considerably if the methods section was clearly set out and organised into sub-headings.

If the findings are to be interpreted as the authors suggest then the argument needs to be much more carefully made. First, the precise changes between open and closed format need to be specified. Second, some plausible explanation needs to be given as to why these changes should result in lower mortality, yet not lower morbidity. Third, other potential explanations for this change need to be discussed, particularly given the long time period and the lack of data in the intervening period when the changes took place.

I also consider that the advice of a statistician should be sought on whether the
simple before and after comparisons are adequate, or whether a more sophisticated analysis of risk adjusted patient data should be carried out.

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

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests'