Reviewer's report

Title: Hospital variation in transfusion and infection after cardiac surgery: a cohort study

Version: 1 Date: 26 February 2009

Reviewer: Gavin Murphy

Reviewer's report:

This is a useful study that will contribute to the ongoing debate as to the safety and efficacy of allogenic blood components.

I have several major comments.

1. The omission of several important variables raises the possibility that significant confounding might have affected the results. The authors dismiss the importance of one rather important variable, left ventricular function, as a predictor of outcome. They also fail to consider other very important confounders such as preoperative haemoglobin concentrations, intra-aortic balloon pump use, the use of off-pump surgery and aprotinin, to name but a few. This weakens the conclusions that can be derived from the study results, particularly with respect to inter hospital variability.

This should be considered more fully in the discussion.

2. The authors do not distinguish between different blood components. This again weakens the strength of their conclusions. There is some evidence that platelets do not have significant adverse effects following cardiac surgery and no evidence that plasma is immunomodulatory in cardiac patients. There are some units that routinely administer plasma to cardiopulmonary bypass patients. This again may have confounded the results. This would be important for example where plasma transfusions reduced allogenic RBC transfusions which are very strongly associated with adverse outcome. Again these considerations should be considered more thoroughly in the discussion.

Minor points:

1. The introduction is too long.

2. The discussion lacks focus and could be significantly shortened. It reviews other studies rather than critically evaluating the data presented.

3. I am not sure Figure 3 adds very much to the manuscript.

4. Why is the variation less for African Americans, this result should be discussed.

Which journal?: Appropriate or potentially appropriate for BMC Medicine: an
article of importance in its field

**What next?:** Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

**Quality of written English:** Acceptable

**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