Reviewer’s report

Title: Comparison of neonatal red cell transfusion reporting in neonatal intensive care units with blood product issue data: a validation study

Version: 0 Date: 24 May 2017

Reviewer: Myles Smith

Reviewer’s report:

This seems like a worthwhile examination of the validity of a measure of transfusion in this population.

A few points related around the statistical methods and their explanation:

1. In the abstract methods and results, it is confusing which group comparisons are being described: there are three: NICUS, the Blood Watch data, and the Admitted Patient Data Collection "hospital data", but the methods section refers to "the two datasets", but then goes on to refer to the third group "hospital data" in the results. I think this needs to be a bit more explicitly defined.

2. The quantitative agreement between measures is assessed with a weighted Kappa, with the table implying this was computed for the number of transfusions grouped into 1-2, 3-4, 5-9, 10+.

   - Why were these groups chosen?

   - Could this have been analysed as a continuous scale of units transfused?

   - If there is some significance to these groupings, why then in table 4 are number of transfusions grouped as 1, 2, 3-9, 10+ (splitting the 1-2 group and grouping the 3-9)?

   - Regardless, the reason for analysing like this should be specified in the methods section.

3. Tests of change over time are given p-values in the results section (for changing transfusion rates). I could not find the type of test mentioned anywhere in the text - this should be described in the methods section.

I agree that the results support the conclusion that the NICUS data is a good measure of transfusion, but I wonder whether a measure of quantitative agreement would be helpful, and if this was considered not to be the best approach, I think this should be explained in greater detail in the methods section.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.
Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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Acceptable

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