Reviewer's report

Title: Polymicrobial bloodstream infections in the neonatal intensive care unit increase mortality: A case-control study

Version: 1 Date: 16 May 2014

Reviewer: Matthew Laundy

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Major Compulsory Revisions

1. Title: Title of paper implies causation which the text quite rightly states that there can be no conclusions of causality. Association only

2. Causality or association – the main concern I have about this paper is that the controls are not matched with the cases appropriately. While the gestational age, birth weight, age at infection etc are matched, surgery is not. What this paper says to me as it stands is that surgery is a risk factor for mortality, an observation long recognised. The effect of polymicrobial infections independent of surgery has not been assessed. Either a subset analysis of those polymicrobial patients without other surgery should be analysed or the controls matched to surgery. The numbers of patients with polymicrobial infections without other surgery will be small so subset analysis may not be possible.

3. Blood Culture Duration – how this was calculated is important. How often were blood cultures taken to assess the first negative? Daily etc.? Was this consistent?

Minor Essential Revisions

1. Incorrect reference: In line 65 a neonatal review is ascribed to reference 13. I do not have access to the full reference but I do not believe Weinstein et al is referring to neonates but to adult patients.

Minor Discretionary Revisions

1. Type of blood culture should be stated. Does the unit use a single pediatric bottle or a separate aerobic and anaerobic bottle? I note no anaerobes in the organism list.

2. What was the other type of surgery cardiac, GIT? May influence type of organisms grown.

3. The paper mentions that lines were at time of infectious episode but not when surgery was in relation to infectious episode.

4. You should comment on the reduction in infections between 2009 and 2012, the time period over which case control analysis took place. Why did this occur? A change in patient mix or unit policy. Is it possible that it may have affected your analysis?
5. I am unsure as to the purpose of the additional table?

**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 I have no competing interests.