Reviewer's report

**Title:** Growth of a cohort of very low birth weight infants in Johannesburg, South Africa

**Version:** 1 **Date:** 30 December 2010

**Reviewer:** Petteri Hovi

**Reviewer's report:**

Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

1. The abstract should include the number of subjects in each analysis, since these numbers are far below 139, which was the total of subjects with at least one follow up visit.

2. The second paragraph in the Methods does not state how many VLBW infants were still born, how many were live born, how many were admitted, was the NICU based VLBW population representative of all VLBW births in the area, how many were transferred into another hospital, and why, how many died, how many did not attend any visits. In order to judge the risk for selection bias and to know how the results can be extrapolated into other towns and countries, all these data are needed.

3. The second paragraph in the Methods does not state who did the Ballard scoring (Only the Discussion does). How old were the infants at time of scoring? The junior attendants’ personal systematic measurement error should be accounted for in the analysis. Gestational age in this article is of great relevance since all outcomes depend on it.

4. In Subjects, the second paragraph gives data on infant nutrition. It is not clear, whether these data are observations of whether they only are current recommendations.

5. In the Data analysis, in the first comparison “1. Comparison with healthy term infants using the WHO Child Growth Standards (WHO-CGS)”, the authors do not, but should, present methods for statistical testing.

6. In the Growth Measurements and Analysis, in the second paragraph, the authors mention ages 0, 4, 8, 12, and 18 although the first sentence in Data collection states the data was collected 3 monthly. How were the measurements obtained if they were missing at 4 and 8 months? How accurately were the visits, in fact, 3 monthly?

7. In the Data analysis, in the second paragraph, the authors state they have compared means of their data to medians of published data. This cannot provide data to state that “There were no significant differences between the 2 groups beyond...” in 4.2.2 Comparison with international VLBW infants. If only medians for other cohorts are available, calculation, in current data, of medians and their confidence intervals could be more useful.
8. In general, the authors group the measurements by age ranges (See Table 3). The authors give no data to support that the individual measurements in the current and in the historical cohort would be performed at similar ages distributions.

9. In the Data Analysis, in the third paragraph states: “The data in both groups were normally distributed...”. The authors need to move this information into the first paragraph of Data analysis, as it is of relevance in all testing. This is a very important part of the article because the number of subjects in the smallest groups is only seven. How was the normality assessed?

10. Sample characteristics state 48% were SGA. By which criteria? How did the SGA subjects grow?

11. “4.2.1 Comparison with healthy term infants” refers to Figures 1 to 4. Unfortunately there are no figures in the pdf-file.

12. In “4.2.1 Comparison with healthy term infants”, Number of participants at different ages is missing.

13. “4.2.2 Comparison with international VLBW infants”. Here, age 2 months is mentioned, see #6.

14. The Discussion ends with a set of four recommendations. Instead of those, this part of a manuscript should contain conclusions that base on current results. The Conclusions in the Abstract should reflect the main conclusions presented in the Discussion.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

15. The Z score values in the Abstract, 0, 0.8, and 0.01 should all have a similar number of decimals, preferably one decimal.

16. In the Abstract, stunting prevalence cannot logically serve as a reason for length deficit persistence.

17. I find the idea of comparison to the Cooper and Sandler cohort useful. However, the reference 15 does not contain the data in the same form presented in current article Table 3 and this should be clearly stated.

18. 4.2.1 A new growth outcome, weight-in-excess-of length, is introduced here in the Results. It should be introduced already in the Methods.

19. The Discussion, second paragraph from the end, states Ballard score overestimates gestational age. This important issue should be deepened by including a comparison of gestational age determination methods in the studies providing the various sources of comparison data used in this article. The effects on results should be thereafter discussed.

20. In Discussion the second paragraph from the end includes the limitations of the study. Using the expression “relatively small” when referring to a sample size of seven does not sufficiently underline the low power of such comparisons for the readers.
Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)

21. The Background could be edited to be shorter and it should be better balanced with the aims. Most importantly, the final paragraph preceding the aims states “Finally, an ideal growth reference for VLBW infants is not currently available”. This provokes the reader to wait for the study aims to include production of such a growth reference, which they do not.

22. CGA should be spelled out at first appearance in the text and the acronym CGA should be used thereafter consistently.

23. Sample characteristics, in the Results, state that “Of the 139 infants ’forming part of the study’”. These were, in fact, the 139 who attended at least one visit. The authors should stick with that expression in order to be clear.

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, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests