Reviewer’s report

Title: Predictors of mortality among HIV Infected Children on Anti-Retroviral Therapy in Mekelle Hospital, Northern Ethiopia, A retrospective cohort study

Version: 5 Date: 29 January 2013

Reviewer: Johan Nikolai N Bruun

Reviewer’s report:

Major Compulsory Revisions

1. Methods: The descriptions of the methods used are incomplete. 432 records were reviewed and data from 416 was complete. The authors state that the 432 study participants were a random sample from 519 children starting on ART. Why were the last 78 not included in the review? It is not stated whether some children were excluded from the program. As the study site was a referral hospital there may be a selection bias due to criteria for referral. The diagnostic criteria for HIV-infection are not given. Was the diagnosis based on antibody test and if so after how long time? Was PCR used for early diagnosis of HIV infection?

2. Results: Hemoglobin values are missing among the baseline characteristics given in table 1. The bivariate analysis of contributing factors associated with mortality is only shown for factors shown to be significant. Were other factors included in preliminary analysis? The results of such analyses should be given or added to table 2, and the p-values of the statistical comparisons may also be added to the table. Other studies have found weight for age, female gender and prophylaxis with cotrimoxazole to be significant. These factors should be included and analyzed if available. WHO has for at least most of the study period recommended routine cotrimoxazole prophylaxis for children borne to HIV infected mothers. Was this done?

3. Discussion: The main weakness of the study is the composition of the material with almost half of the children being 5 years or more at inclusion. As the mortality of HIV infected children is higher in lower age groups this creates a selection bias and many younger patients with poor prognosis were probably not included as they died early or were not referred to the program.

The high early mortality in the present study would support the value of an earlier start treatment before development of signs of immunodeficiency. This may be possible even without availability of PCR for diagnostics. According to the recommended follow up scheme by WHO the diagnosis of HIV infection in the children could be made at around 18 months of age by means of routine antibody testing. Implementation of the recommended use of cotrimoxazole prophylaxis would also have an important effect on reducing the mortality. This should be discussed.

4. References: Some of the references in the text is inaccurate: Discussion
second paragraph ref. 11 and 24 are both to materials from Kenya and not from South Africa. Discussion third paragraph ref. 12 and 13 does not seem to refer to materials from South Africa. Discussion fourth paragraph ref. 18 and 24 refers to material from other countries in Sub Saharan Africa and not from South Africa.

Minor revisions:
5. Most of the results given in table 2 are repeated in the text. It is probably better only to outline the main results in the text and refer to the table for details.

Discretionary revisions:
6. A reasonable conclusion I think would be recommendation of a close follow up of all children of HIV positive mothers in order to make the diagnosis and start treatment at an earlier time and to secure implementation of cotrimoxazole prophylaxis to all HIV positives and possibly also to children who’s HIV status has not been clarified.

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

**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.

Johan Bruun