Reviewer’s report

**Title:** Exploring telomere length in mother-newborn pairs in relation to exposure to multiple toxic metals and potential modifying effects of nutritional factors

**Version:** 0  **Date:** 24 Oct 2018

**Reviewer:** Tim Nawrot

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In a mother-child cohort in northern Argentina (n=169), the authors measured multiple toxic metals and micronutrients in maternal blood or urine (average across pregnancy), placenta and cord blood. Zinc status showed the strongest association with telomere length with positive association in the mothers (~1 SD increase/5 mg/L in whole-blood zinc), and inverse in the placenta (-1.2 SD/10 mg/kg) and in the newborns (-1.6 SD/2 mg/L in cord blood). Serum folate was inversely associated with telomere length.

The study is a mix of different exposures and matrixes. I am wondering whether the authors might consider multiple exposure models to integrate different exposures.

Crucial information on telomere length measurements is missing such as which primers have been used and coefficient of variation among repeats of the assay; but I am confident that the authors can complete this. Details should be provided here.

Some of the classical confounders were not taken into account including age of the father and newborn sex. I am aware that in the statistical analysis it is noted that these variables (among others) did not change the estimates more than 10%. I am not sure that this is a fully justified to not include them? Were these variables statistically significant?

It would be of interest to have an analysis on maternal telomere length as a potential determinant of newborn telomere length or as an important mediator to understand the observed changes in the newborns between exposure and newborn telomere length.

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

Yes

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