Reviewer's report

Title: Calcium, phosphate, magnesium, and alkaline phosphatase gestational age-specific reference intervals for preterm infants

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Reviewer: Marek Brabec

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This is a nice study with substantial potential practical impact. Certainly, it is sound to construct normal ranges (or intervals) for the cord blood serum values of bone minerals conditionally on not only gestational age, but also on relevant maternal and neonatal variables, as suggested in the paper.

The choice of the variables seems to be reasonable. The paper uses rather standard statistical methodology in a way that seems to be appropriate for both study goals and nature of the analyzed data.

The authors should clarify more explicitly their statement “… accounting for the intragroup correlation induced by twins and triplets …” which appears on page 4. It seems that something like generalized estimating equation (GEE) methodology or a mixed model has been invoked here, but from the text, one cannot be sure how the correction was done.

The only slightly problematic aspect is related to the fact that the analysis upon which the paper’s results are based is performed only on babies coming from a single center. That is already an improvement compared to the previous situation when no such data were available, but the normal values should be verified more broadly. That will be necessary in order to prevent possible local influences upon the normal intervals (for various reasons, the local normal might not be entirely representative for population/national or even international normal). It is entirely OK to publish the pilot and pioneering results of this study, but the need for future validation on at least national level should be openly and explicitly mentioned somewhere in the text of the paper.

The word “multivariate”, is not used appropriately in the paper (e.g. in “…so both variables could not be included in the multivariate model.”, but also at other places, including a table caption). Most likely, a multiple regression model is meant (with a univariate response but several explanatory variables, instead of a multivariate model that implies a vector response taken simultaneously!).

The paper should be published after adopting the mild changes suggested.