Reviewer's report

Title: A Prospective Cohort Study of Biomarkers of Prenatal Tobacco Smoke Exposure: The Correlation between Serum and Meconium and Their Association with Infant Birth Weight

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Reviewer: Theo de Kok

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This well-written manuscript describes the potential use of meconium as a biological matrix for the assessment of prenatal environmental exposure. In order to do so, tobacco smoke metabolites were measured in meconium and compared to serum cotinine concentrations of the mother during pregnancy and to self-reported (environmental) tobacco smoke exposures. Also, tobacco smoke metabolites in meconium were correlated with birth weight, a health outcome known to be affected by tobacco smoke exposure.

Although the use of meconium-based biomarkers is not entirely new, it has not been used frequently in environmental exposure studies, and certainly not in larger study populations. Therefore, the validation of this prenatal exposure biomarker in a large study group (n= 337) is of importance in the field. The study appears well conducted and appropriate statistical analyses have been performed.

Minor comments/discretionary revisions

1. Although it is good to have an elaborate description of the data analysis procedures, these could be condensed to some extent.
2. The authors indicate the relevance of taking genetic factors such as CYP2A6 into consideration, but did not perform these analyses. As this would not have been a major effort, it now appears as a shortcoming that could have been fixed quite easily.
3. The authors conclude that meconium is a promising biological matrix for exposure assessment in future studies; do they advise to collect meconium samples is newly planned mother-child cohort studies, or do they still consider this to be ‘premature’?

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 that I have no competing interests