Reviewer’s report

Title: Customized versus population birth weight charts for identification of newborns at risk of long-term adverse cardio-metabolic and respiratory outcomes: A population-based prospective cohort study

Version: 0 Date: 02 Jul 2019

Reviewer: Ulla Sovio

Reviewer's report:

This is a well-conducted and novel study on an important topic. The results are presented in detail and the manuscript is well-written. I have written some specific comments below.


Subjects and methods

The authors cite reference 15 (Verburg et al, 2008) which they used for population charts but this reference only gives reference curves for individual ultrasound measurements (biparietal diameter, head circumference, abdominal circumference and femur length). Could the authors give some more detail on how these were used to calculate population birth weight percentiles? Do the two methods (customized and non-customised) compare, i.e. was the same gestational age adjusted (fetal) weight reference used in both methods with and without customization, so that any difference between them would be explained only through customization for all other variables except for gestational age?

Individual customization of charts in Generation R included smoking. Customization for a pathological variable such as smoking may prevent identification of growth restriction in infants whose growth is affected by it. The authors could discuss their choice of variables chosen for customization.

Results

In the tables, the p-values currently presented as 0.000 should be presented as <0.001, since a p-value is never exactly zero. There is no need to dichotomise p-values into "significant" and "non-significant" or mark the "significant" ones with asterisk (*) since all p-values are given with an adequate accuracy (see Colquhoun, 2017. R Soc Open Sci. 2017 Dec; 4(12): 171085 p. 16 points (3) and (4)).

For clarity, Figure 1 title could be changed to "Prevalence of birth weight classifications and their association with infant growth patterns and cardio-metabolic and respiratory outcomes at age 10". The Figure S2 title could also be changed similarly.

The figures should be readable on their own, e.g. "Clustering" should be explained in the footnote.
Discussion: The authors commented on the faster decrease in stillbirths in England and Wales in the areas that implemented customized charts (reference 28: Gardosi et al, 2013). Causality is hard to establish without a trial, and to put these findings in context, the authors could comment on the results from across Europe where much faster decreases in stillbirth rates have been seen in other countries such as Denmark and the Netherlands (Zeitlin et al, 2016. Declines in stillbirth and neonatal mortality rates in Europe between 2004 and 2010: results from the Euro-Peristat project. J Epidemiol Community Health. 2016 Jun;70(6):609-15).

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

Unable to assess

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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