Reviewer's report

Title: Distinct regional differences in perinatal mortality in the Netherlands

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Reviewer: Inez M.A. Joung

Reviewer's report:

An interesting study, which might certainly add to our knowledge on this topic, when the major compulsory revisions can be addressed satisfactorily

Major Compulsory Revisions
- the authors differentiate between between ethnic groups by dichotomizing between Western (native Dutch and other Westerners) and non-Western (including different ethnic groups like African/Surinamese Creole, Surinamese Hindustani, Moroccan and Turkish). However, in a previous Dutch study on ethnic differences in infant mortality (Troel EJ, et al. Paediatr Perinat Epidemiol 2006;20:140-7) it was shown that the mortality risk in the early neonatal period (defined as death in the first week of life) was elevated for the Surinamese and Antillean group, but not for the Turkish and Moroccan group. In the Turkish group, the largest ethnic minority group in the Netherlands, the point estimate for the mortality risk in the early neonatal period, was even smaller than for the native Dutch population (although not statistically significant). By pooling the data of the large ethnic minority groups in the Netherlands, the ethnic differences in perinatal mortality might well be leveled out, which might have biased the outcomes of the study, especially given the fact the division of ethnic minority groups in the Netherlands is quite skewed with the largest proportion living in the western region. What are the outcomes in case when adjustment is made for the separate ethnic minority groups?

- in the discussion section it is stated that the current perinatal registry does not contain information on smoking, however in table 2 figures are shown on percentage of heavy smoking by region. This seems contradictory.

- in the discussion section it is hypothesized that a possible explanation for the unexplained regional differences might be differences in care. In the result section the authors show that there are regional differences in health services patterns (table 4). To what extent can the remaining regional differences (model II in table 3) be explained by the regional differences in health care factors from table 4?

Minor Essential Revisions
- is there any information on the completeness of the registry with regard to early neonatal mortality?

- why is probabilistic record linkage necessary, to identify infants occurring in more than one registry?
- why is chosen to assign women with an unknown or invalid postal code to the province Zuid-Holland? Why is not chosen to exclude these women from the analysis?

- data presented in the last paragraph of the result section (regional differences in within the five clinical relevant risk groups) would be easier to digest when shown in a table

- in table 1 after 'Utrecht' the sign '#' is typed, this seems a typo

- it is unclear what is meant by two sentences on page 13: "The elevated mortality risk for children with congenital anomalies in the region north (while prevalences was similar) might also point to differences in care shortly after birth. Late neonatal mortality showed the same regional pattern, excluding mortality differences by different care management during the first week". Please clarify.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests