Reviewer's report

Title: Gestational age, mode of birth and breastmilk feeding all influence acute early childhood gastroenteritis: a record-linkage cohort study

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Reviewer: Azza Ahmed

Reviewer's report:

This retrospective record-linkage cohort study aimed to investigate the effects of caesarean section, premature birth and formula feeding on the risk of acute gastroenteritis in early childhood.

Abstract results: Add the mean or median age of the first AGE. Usually it is around infancy not early childhood.

Background

Explain why you chose to conduct the record linkage cohort study. First sentence (line 59-61), specify where the incidence was high, developed or developing countries, national or international? and relate it to your own country.

Line 63-64, need a reference to support this sentence.

Line 79-81 sentence needs rewording. Breastmilk exposure does not increase susceptibility to gut infections.

Line 93-95: the aim or purpose of the study need to be consistent with the abstract even in wording.

Methods

Line 123-124: Need to explain the how did you define premature infant or provide the source of information for the newborn classifications. Late preterm infant is defined as 34 to 36 weeks, so why you defined premature as 33 to 36 weeks?

Need to clearly define all the variables and the study outcomes. For AGE, is hospitalization is an eligibility criterion? A lot of cases of AGE are usually treated in primary care settings and does not need hospitalization.

Lines 128-131: talking about methods or classifications infant feeding. You just used the feeding pattern on hospital discharge, what about duration of breastfeeding and exclusivity? Those are major breastfeeding indicators.

144-146: Clarify what do you mean by follow up in this sentence “Follow up began at discharge from birth care and ended at age of first gastroenteritis hospital admission, death, sixth birthday, or end of the study period (June 2012), whichever occurred first.” What did you check in this follow up?

Results

Line 187-188: the sentence “Average follow-up per infant was 4.37 years (standard deviation: 1.88)” I do not know how you define infant here? Do you
mean child? Again what do you mean by follow up? Please clarify. It would be better if you add the ARR. The will strengthen your results.

Discussion
Relating the results to the effect on infant gut microbiome is great, but this study did not test or conducted any testing for the infant gut, so you cannot say it impact subsequent gastrointestinal health by possibly modifying or disturbing gut microbiota and immune system homeostasis.

292-295: you may mention here also the 39 weeks campaign by March of Dimes (MOD) and how it decreased prematurity rate especially late preterm infant. The guidelines of no elective induction or CS before 39 weeks unless it is medically indicated were effective in reducing late preterm birth in USA.

Overall: This is a well-designed and written study for a critical topic the will contribute to the science of

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

No conflict of interest