Reviewer’s report

Title: The safety of Canadian rural maternity services: A multi-jurisdictional cohort analysis

Version: 2 Date: 9 March 2015

Reviewer: PATRIZIO ARMENI

Reviewer’s report:

1. Major Compulsory Revisions

1) The authors should clarify the objective of the paper. In the present form, the paper looks like a confirmation study for results already available in the literature and does not add much to the existing knowledge base. However, the database is new and a great effort must be recognized behind the study.

2) I suggest that the authors push their statistical analysis more in-depth. So far, the comparison of the odds ratios has not fully confirmed what is suggested by the literature. In fact, perinatal mortality is significantly higher just in level 3 in Alberta and 1 in BC, which is not enough to support the hypothesis of worse health outcomes the lower the level of service. Instead, other factors might have contributed to this result. I would have expected, for example, that time (year and period/hour of delivery in the year) were controlled for, in addition to the existing set of controls at the individual woman level. Moreover, a pooled regression with region dummies could have helped to identify common effects.

3) A possible way of better exploiting these results could be reversing the perspective: instead of finding a confirmation of what has been already established by other studies, it could be of paramount interest explaining why this is not true. In fact from the results, only the procedural difference (caesarian sections) is almost always a consequence of the level of service, while the outcomes are not (but two exceptions). In other words the audience might be interested in knowing that the type of service provided (natural delivery or surgical one) depends on the actual supply in the neighborhoods but the outcomes are not influenced: therefore some questions arise: is the a greater need of caesarean sections in the regions where the supply of service is higher? Are there inappropriate choices of caesarean sections? Are there other factors that interact with service level to predict health outcomes (e.g. period of the year, hour, year)? All these questions would increase the interest of the paper while being more adherent to the actual results the author got from their analysis.

2. Minor Essential Revisions

1) The forest plot should be clearer, preferably providing reference lines in all the four variables investigated.

2) The tables should include the coefficients for the other control variables to provide the audience the impact of mothers’ characteristics.
2. Discretionary Revisions
none

**Level of interest:** An article of limited interest

**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