Reviewer’s report

Title: A population-based surveillance study on severe acute maternal morbidity (near-miss) and adverse perinatal outcomes in Campinas, Brazil: The Vigimoma Project

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Reviewer: Edward Fottrell

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The manuscript by Amaral et al describes an audit process of perinatal adverse events that is original in that it includes maternal morbidity (near-miss) along with maternal, foetal and neonatal deaths in Campinas, Brazil. Descriptive results of the frequencies of each of the adverse events are provided and a process of characterising the adverse events and their preventability by a review committee is described. This paper provides a good example of the feasibility and value of adding maternal morbidity to confidential enquiries and audits of adverse perinatal events. The study question is well-defined, methods are appropriate (although as described below some additional details might be helpful) and the conclusion that, without abandoning confidential enquiry into all maternal deaths, an evaluation of near-miss as a sentinel event in perinatal health and the formation of regional committees to discuss interventions to improve perinatal care is justified and supported by reference to relevant literature.

Minor Essential Revisions

A little more context and a more detailed description of the study setting may be useful for the reader – for example, total population size, fertility rate / births per year and a brief description of health services in Campinas or Brazil as a whole. In relation to this, it would be useful to know whether deliveries outside of the included hospitals (e.g. in private institutions or at home) were excluded, in which case the claim that the study is population based and investigated all cases of NM, MD, FD and END in Campinas is likely to overstate the reach of the study and should be toned down.

It would be desirable to quantify the proportion of deliveries that are hospital based in Campinas rather than state that “nearly all” are hospital based. If this is the 98% referred to in the Population and Methods section, a description of how this figure was derived or a reference is necessary.

Justification for the differing methodological approaches applied in the three largest hospitals (prospective case seeking) and the remaining six hospitals (retrospective record review) should be provided and a discussion of the strengths and weaknesses of these differing approaches based on the authors’ experiences would be interesting and useful to others wanting to implement similar systems. Likewise, a more detailed description of the composition of the
maternal health committees would be useful.

Some reflection on the quality, completeness and timeliness of records in the study hospitals is necessary to assess the quality of data used in the study. In relation to this, a brief discussion of the extent to which the auditing system proposed by the authors depends on high quality records would be useful.

The meaning of the paragraph on page 10 begining “Adverse perinatal events occurred...” is not clear and should be revised.

Page 13, last paragraph – “Nederland” should read “The Netherlands”.

Discretionary Revisions

Some discussion of the fact that, based on the audit results and committee reviews, only about one third of adverse events were considered to be preventable by intervention would be appropriate. If this refers only to medical interventions then this should be clearly stated. This is a low proportion and contradicts commonly held opinion that the majority of adverse perinatal events are preventable given sufficient health service provision, suitable behaviour and political will. Some further discussion of this relatively low level of preventability and how this might reflect biases of the committees or how it might impact on the effectiveness of the audit process as a whole would be interesting.

Other than the factors that they already describe, what infrastructure-related factors do the authors think are essential for the successful implementation of such an auditing system in other settings?

It would be useful to know how causes of maternal and perinatal death were diagnosed in the study – were post-mortem examinations carried out or are the diagnoses based on clinical diagnoses and records?

Table 3 is missing the adverse event of maternal mortality – this should be added for completeness.

Tables 4 and 5 – there does not seem to be a logical order to the listing of prevention measures listed in the tables. I suggest listing them by descending mean or total scores within each category.

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

**Quality of written English:** Needs some language corrections before being published

**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