Reviewer’s report

Title: Birthplace in New South Wales, Australia: an analysis of perinatal outcomes using routinely collected data

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Reviewer: Charles Algert

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This study is attempting to establish whether linked Australian data can be used to compare outcomes in different maternity care settings. Such comparisons are of interest, although there is already considerable research published in this area. The major flaw with this study is that the authors have done nothing to evaluate the quality of data, and whether they can draw valid conclusions. The fact that they can perform an analysis does not suffice to prove that it was a good analysis. A major focus of this paper should have been an evaluation of whether place of birth as reported in the NSW Midwives Data Collection (MDC) was consistent with a definition of birth centre and homebirth and was consistent with reported onset of labour, analgesia and mode of delivery on the MDC. As part of this, the authors need to provide a clear definition of what constitutes birth centre care.

The Methods\Data definitions and collections states that “Women were classified according to planned place of birth at the onset of labour” in the NSW MDC. The specific timing of the place of birth decision (before or after onset of labour) is not indicated on the MDC form. Thus the recording of birth place intentions as being “at the onset of labour” depended upon midwives taking cognizance of the MDC coding manual notes. There are some relatively straightforward methods by which this study could have evaluated the internal consistency of MDC coding. For one thing, there should not be any “birth centre” deliveries where the woman was induced. Where this occurs, a possible problem is that some hospitals may have definitions of birth centre which permit induction/augmentation or epidural analgesia (also see comment in Methods: exclusion criteria below about need for defining “induction”). Then there is the issue of planned birth centre/delivered-in-hospital births. A substantial percentage of these births as reported in the MDC are women who were induced and there are some women who had a prelabour caesarean. Presumably the birth centre or homebirth plan was made before the onset of labour, perhaps weeks before, and was subsequently over-ridden nearer the time of birth. Given this, it is not justified for this study to claim that they performed an analysis of planned place of birth “at the onset of labour”. Even for the women who had labour augmented, there is no certainty when their transfer from birth centre care happened; they could have been reassigned to hospital care before onset of labour. The authors should drop the clause “at the onset of labour” everywhere in their methods and results, unless they have some alternative methods of proving that all planned births decisions occurred only at onset of labour.
Major compulsory revisions

Perhaps the major flaw in this study is that the definition and reliability of place of birth reporting is not assessed. The authors need to demonstrate that “birth centre” on the MDC means the same thing as what the authors intend (no induction, no epidural/spinal, no augmentation?, private hospitals?). The authors also need to compare the purported timing of the decision for planned birth with reported labour onset.

ABSTRACT

The last sentence of the Results paragraph should be in the Conclusion. The last sentence of the Conclusion says that this analysis has “proven to be effective”. It is unclear what “effective” means, nor how they have proven this quality.

METHODS

Exclusion criteria (page 10): Why are inductions excluded? If using trial ITT methodology, an intention to deliver as a homebirth or at a birth centre is the salient fact. Women would have had to be transferred from a birth centre, but this is part of using the place of birth field. If augmentation of labour is not excluded, and the timing of delivery plans cannot be stated with certainty, inductions probably should similarly be included in the analyses.

It is vital that the authors specify what constitutes induction. Is ARM on its own an induction? Prostaglandins? The MDC does have data on which induction methods were used, and this should be part of evaluating the internal consistency of the place of birth field. Is augmentation with oxytocin acceptable as “birth centre” management? They can check whether any of this occurred.

Data definitions (page 12): The composite infant outcome, taken from a UK study, is an unsatisfactory composite. It appears to be unbalanced and needs to be expanded. It includes six components, of which three are birth trauma. One of these latter, a fractured clavicle, seems an odd choice to be part of a limited composite that intends to represent severe morbidity. There is a lack of components that represent hypoxic events, which could be much more worrying for the infant’s prognosis. A parent would be disturbed if their infant is diagnosed with birth asphyxia, or has to be ventilated for more than a day. Neonatologists would also generally be more concerned about these latter events than they would be about a fractured clavicle. An additional problem with the components of the composite is that neonatal encephalopathy had a different ICD10 code prior to 2006, of which the authors seem unaware.

women identified as complicated (page 13): There is different adjustment for pregnancy complications depending upon the outcome. For pregnancies ending in a stillbirth or neonatal death, the authors have done individual data record review to exclude additional pre-labour complications. Why could the authors not use an algorithm to identify those same conditions in all birth records? If it is important to exclude those other complications for stillbirth and neonatal death, it
should be important to exclude them for the primary outcome as well. The stated list of pregnancy conditions which leads to pregnancies being labelled complicated is certainly not complete. For this study, it would appear to be important to include malpresentation and disproportion codes and placenta praevia, amongst others.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I have no direct financial competing interest. I work for a research group that does similar research and uses the same datasets, and in the sense that we submit grant applications to the same funding bodies, can be perceived to have a competing interest.