Reviewer's report

Title: Evaluating maternity care using national routine datasets: How are statistics affected by the quality of data on method of delivery?

Version: 2 Date: 3 March 2013

Reviewer: Christine Roberts

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This is a well written paper assessing the quality of routinely collected data, and examining the impact of incorporating data of variable quality into maternity care statistics.

Major comments

Deliveries appear to be derived only from procedure and maternity tail codes, yet ICD10 diagnostic codes are used to select records for other analyses (eg multiple births, breech presentation). The authors seem to assume that the procedure and maternity tail codes will identify all singleton births and I do not think this assumption is justified (see Med Care 2012;50(4):e7-e20 and BMC Med Research Methodol 2012; 12:149). Specifically:

• The authors should include (or explain why they shouldn't) Z37.0 and Z37.1 (ICD-10 diagnosis codes for singleton births) and O30.1 (multiple gestations).

• Furthermore, a small number of women never get any delivery information coded and these are typically women with severe morbidity and prolonged hospitalisation (Mat Child Health J 2008;12:469-77). Although the loss of these women from analyses of mode of delivery is unlikely to make a difference, it becomes extremely important if the data are used to assess maternal or perinatal morbidity and mortality. This caution should be added as a limitation of the study.

Minor comments

The terms “elective” and ‘emergency” caesarean section (CS) are confusing because of the different ways these terms are used internationally. eg in the USA “Elective CS” means a CS with no medical indication; elsewhere elective CS refers to prelabour caesarean and emergency CS refers to intrapartum caesareans; and in other situations (as it appears in this study) the terms reflect a measure of the urgency. The authors are bound by the way the data are collected but the way these terms are used is not defined until the discussion (page 10 para1). Please either report this in the methods or as a footnote to Table 1. Furthermore, the use of these terms as a measure of urgency (which is subjective) might explain some of the lack of consistency across the two data sources.

How many diagnosis and procedure codes were available per record? There appears to be only a single delivery method in the maternity tail – correct? Again
this may explain some of the lack of consistency when women have more than one type of procedure. For example: a vacuum extraction attempt followed by forceps, a forceps rotation followed by vacuum, a trial of forceps in theatre that proceeds to caesarean, or even a caesarean where the baby is extracted with forceps.

The authors should be a bit more specific about the “winsorisation” of consistency results. Does “10% winzorisation” (sic) mean that the 0-10th percentiles were winsorised to the 10th percentile?

The identification of breech presentation from hospital data is problematic due to under-ascertainment (see systematic review Med Care 2012;50(4):e7-e20) – or was this available in the maternity tail? If relying on hospital data it is worth looking at O64.1 – my experience is that this code is used (albeit incorrectly) for women having a planned/prelabour/elective CS for breech presentation.

Breech presentation is primarily of interest among singleton births at term where the rates should be 3-4%. If the frequency is too low, the authors may want to reconsider including this in their analysis. Furthermore, there is variable reporting in the paper of i) elective CS for breech (page 5, 3rd dot-point) and ii) breech vaginal deliveries (page 7, para 1) – these are not reciprocal groups as some women may attempt vaginal birth and have an intrapartum CS. Although the authors report that vaginal breech birth is “uncommon” (page 7, para 1), the elective CS for breech is reported as 52.9%-62.8% (page 8, para 2) rates that would be very low for most high income countries. Please stick to vaginal or caesarean birth for breech presentation.

Figure 2 does not show any hospitals with <1000 deliveries per annum. On page 7 of the results, it says that Figure 2 shows “trusts that had more than 500 delivery records containing both procedure and maternity tail codes.” Allowing for exclusion of multiple gestations and records without both sets of codes, it appears as if there were no units with deliveries in the 700 to 1000 p.a. range. Can this be correct?

The Figure 2 regression lines should not be extrapolated past the extremes of the measured data. The regression lines beyond the lowest and highest values should be erased.

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

**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