Reviewer’s report

Title: Deferred and referred deliveries contribute to stillbirths in the Indian state of Bihar: results from a population-based survey of all births

Version: 1 Date: 26 Oct 2018

Reviewer: Hannah Blencowe

Reviewer's report:

This is an important and well written study. The introduction provides a clear description of the background and justification for this study.

Minor comments:

As this was a survey recording gestational age in weeks, please ensure that the definition is specified as ≥7 months (as a proxy for late fetal deaths at ≥28 weeks) throughout e.g. abstract, p7 line 13 etc…

Abstract - 'primi births' is not frequently used as an abbreviation of births to primigravidae. The term 'deferred deliveries' is not clear in the abstract - description given in paper, but as not a commonly used term needs some explanation if you use it in the abstract. What is 'push/pull' during the delivery? Why are '....births in private facilities and home' linked together in the abstract results with one OR?

Background - p4 line 10 - this is the ESTIMATED not reported number of stillbirths.

Methods - I think that this could be made more clear for the reader e.g. p5 lines 5 - 21. P5 Lines 5 - 13 if this study was not designed to impact on stillbirths rates please can the authors state clearly for the reader why these interventions may impact on stillbirth rates. Lines 13 - 21 seem to relate to the sample size calculation for the parent study and not clear of the relevance to this study. p5 Lines 23 - 57 - detailed description of the multistage sampling procedure but was this specifically for this stillbirth study or for the main intervention study outcomes?

Data collection - p6. I found this a bit hard to follow. Maybe it would be clear to present:

1) a section on enumeration including dates (in1 states March to October 2016) line 8 - January to December 2016 - how do these differ?.
2) A section on the interviews including dates - were all enumerated interviewed?

Analysis p7 lines 16 - 18 - how were the stillbirth interviews verified? Using signs of life questions and gestational age? Or other method? P7 lines 42 - how were rates adjusted for Bihar's population.

P7 line 47 - 'fresh stillbirth' term is usually used rather than 'fresh death' p8 lines 21 - 23 - was gestational age in months available for livebirths or only stillbirths? Did you consider including this in the logistic regression?

Details of how 'deferred delivery' is defined could be provided in the methods alongside the definition of 'referral'.

Results the SBR is still relatively low compared to the NMR in the study. Do the authors have any comment on the potential reasons for this? At this level of mortality a ratio of around 1:1 may be expected. Is it possible that the method of enumeration missed stillbirths?

P9 lines 54 - end. It would be important to note limitations of 'perceived size at birth' and no data on its accuracy/ validity for stillbirths

P10 line 13 - gestational age ≤8 months - it may be clearer to state that this is used as a proxy for preterm birth (noting again the limitations of recalled GA in months in survey data).

P10 line 18 - 'deferred deliveries' - what is the validity of this indicator? Presumably it is subject to potential substantial recall bias.

P11 line 58 - p12 line 23. The overall antepartum and intrapartum SBR rates calculated together=10.1 / 1000 - why is this lower than the overall SBR?

It may be worth noting the large difference between the potential conclusions from the unadjusted and the adjusted analyses.

Discussion –

The discussion overall is very long the authors may consider condensing and clarifying the arguments presented- maybe consider a table/ panel summarising the key recommendations for INAP from this study

Further discussion could be given to what the authors can conclude about the most appropriate ways to ask about intrapartum stillbirths in surveys. Both skin appearance and maternal recall of fetal movements are potentially subject to substantial biases.
Further attention could be given to the potential impact of recall bias on the study findings and the limitations of survey information from maternal recall in general.

The recommendations could be clearer.

P13 lines 44 - 57 - did you collect any data on neonatal deaths and GA in months on livebirths in your study, as this could allow a potential comparison.

P14 line 2 ref 24 - 26 - not sure that these are the most appropriate references - most recent estimates of IPSB rates globally are in Lawn et al Lancet 2016 Stillbirths: rates, risk factors, and acceleration towards 2030. Or alternatively you could reference other single site studies from LMICs on intrapartum stillbirth rates.

P14 lines 21 - 34 - these are all high income references. Are there any data from LMICS? What is known about effectiveness of foetal movement monitoring, esp in LMIC settings? Reference to the Cochrane review could be included

P14 - lines 44 - 52 - very disparate recommendations given. Most of the paragraph above focuses on fetal movements and little on the effectiveness of improving intrapartum monitoring.

P15 - lines 1-2. This finding is not surprising and may reflect the poor monitoring of fetal growth in ANC, which is challenging even in HIC settings.

P15 line 10 - 16 - this also may not be surprising as you can be SGA term and 2kg.

P16 lines 20 - 29 - this is not necessarily due to suboptimal quality of care, as these groups of babies may be expected to have a worse outcome than uncomplicated singleton cephalic babies.

P16 lines 31 - again may not be surprising as vaginal delivery is usually the preferred mode in otherwise uncomplicated pregnancies with fetal death in utero diagnosed.

P17 lines 5 - 8 - what could account for this finding? Different case mix, poorer quality of care, lack of standards etc…

P17 - line 41 - were most referrals due to breech presentation? What % of all referrals were due to breech?

Tables:

Table 1 - the footnotes to this table are confusing - maybe consider superscript numbering instead as would be easier then to find reference. Birthweight - consider condensing 'not weighted' and 'don't know if weighted' to a single category.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
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