Reviewer's report

Title: Cost Analysis of the Dutch Obstetric System: Home birth compared to short-stay hospital birth - a prospective non-randomised controlled study

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Reviewer: Therese Wiegers

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Commentary BMC-article Marijke Hendrix e.a.: Cost Analysis of the Dutch Obstetric System: Home birth compared to short-stay hospital birth – a prospective non-randomised controlled study

In general:

1. Maternity care is generally regarded as all care concerning pregnancy, childbirth and the postpartum period. However, the authors use the term ‘maternity care’ as a translation of the Dutch word ‘kraamzorg’. That is not correct. ‘Kraamzorg’ is better translated as ‘maternity care assistance’ or MCA.

2. Report of parturition is not a term I am familiar with. I suppose the (LVR-)birth registration form, used by midwives (LVR-1) or by obstetricians (LVR-2) is meant, and not the birth narrative that midwives usually write down in their own dossiers.

Step-by-step:

Title

3. You may have set out to compare the costs of home birth and short-stay hospital birth, but what you actually are comparing is preferred home birth with preferred short-stay hospital birth, and that only for nulliparous women, with no pre-existing risk of complications.

Abstract

4. The fact that only nulliparous women are included in the study should be mentioned in the abstract.

Background

5. Where does the 18% homebirth rate for nulliparae come from? In 2002 that was 32% (TNO-report ‘De thuisbevalling in Nederland 1995-2002’) As far as I know there are no more recent data, because data about birth place are not included in the PRN reports, see [5] and CBS-data on place of birth do not include parity.

6. Perinatal mortality rate (page 4 of the pdf) is incorrectly described as mortality rate between 7 days and 22 weeks postpartum, this should be: between 22 weeks of pregnancy and 7 days postpartum. The next sentence is not true, because there are data about 2006: perinatal mortality rate was 9.8%, see [5].
7. The reference (Ravelli, 2008) is not included in the reference list.

8. At the top of page 5 of the pdf is stated that the costs of home births are expected to be much lower than those of short-stay hospital births. Can you elaborate on that?

9. In the next paragraph maternity care in the hospital is mentioned. It is not clear to me what exactly you mean by that. Are you referring to a hospital birth, followed by a hospital stay for several days, or are you referring to the postpartum hospital stay only?

10. I would appreciate, here, in the background part of the text, more information about societal costs. Please explain what is included and what is not included in the term 'societal costs' and subsequently in the analyses for this article.

11. The last two sentences here are too much alike, I would suggest you rephrase one of them.

Methods

12. It is not clear to me what the difference is between the second step (defining cost categories) and the third step (determine the resources) and I would like to have more information about the different cost categories. For example: what family costs will be taken into account? What are extra costs, made by respondents?

13. Preference for place of birth is asked at 16 weeks pregnancy. That is very early. I assume that many women, especially nulliparae, will not yet have made a real choice at that moment, and I would like to know how many of the respondents indicated they had not made up their mind yet.

14. I would like more information about the way unit prices for midwifery care were calculated. Primary care midwives receive fixed prices for antenatal, natal and postnatal care, regardless of the time they spend with each client or the number of consultations, but the analyses are based on the number and the length of contacts.

15. Reference (CBS, 2008) is not included in the reference list.

16. Sample: here is the first and only place in the text where is mentioned that only nulliparous women are included. There is no information on when the study took place, or whether recruitment was easy or not. How many women were asked and how many declined to participate?

17. Statistical analysis: Outliers were checked, but how many cases were excluded because of outlying values? The difference between the base case analysis and the sensitivity analysis is not fully explained. In both analyses missing data on item level were imputed using general mean substitution. However, there is no information about the level of missing data, not on item level and not on cost category level, but only on data source level. Does the
overall response of 267 complete cases mean these cases have no missing data? Is it possible that missing data might mean no health care consumption? How many respondents would remain in the analysis if cases with missing data were excluded? What would be the result if you treated missing data as zero? Why is it implied in the sensitivity analysis that respondents with missing data overall consumed more health care costs?

Results

18. Participants: the second and third questionnaires are not mentioned any more. Was that information not relevant for this study?

19. 62% of nulliparae with a preference for home birth were referred to secondary care and 71% of those with a preference for a short-stay hospital birth. Can you distinguish between a referral before the onset of labour or after? Because those referred before the start of labour clearly no longer had a choice where to give birth, and they would no longer fulfil one of the inclusion criteria: no medical indications for secondary care. Background characteristics may not be different between both groups, but what about this referral rate? Is the difference you found statistically significant?

20. Cost analysis: women giving birth at home usually receive maternity care assistance during birth (partusassistentie in Dutch) as well as care from a midwife. Are those costs included in the costs of contact with health care professionals?

21. You mention significant differences and not significant differences, but I cannot see that in the tables. Do you mean (not) statistically significant or do you mean (not) remarkable, or clinically significant?

22. What is meant in the sentence at the bottom of page 11 and top of page 12 of the pdf by the words ‘during the period followed’? Do you mean the postpartum period?

23. By recalculating the data in table 4 I understand that the total costs of contact with health care providers (excluding maternity care assistance in the postpartum period, I presume, because that care is mentioned separately) is about 15% of the overall total costs, but it would be helpful to add a table with the totals of cost categories in addition to the costs per period in tables 4 and 5.

24. By mentioning that all 449 respondents are included in the sensitivity analysis, the question arises how many were excluded in the base case analysis and in how many cases missing data were replaced by the general mean. Why are the total costs in the sensitivity analysis so much higher than in the base case analyses, when in both cases missing data were replaced by general means?

Discussion

25. In the first sentence should be added that this article is about the costs of births for nulliparous women. You could speculate about possible influence of
parity on the results, but you cannot ignore it.

26. Halfway page 14 of the pdf it says (in brackets) 0.5% and 2.6% respectively. 0.5% and 2.6% of what?

27. When comparing the costs of the actual place of birth with those of the preferred place of birth, the conclusion is that this may indicate a difference in referral rate. Why so cautious? You already have shown that the referral rates are different (62% vs. 71%).

28. Looking at the cost analysis of the actual place of birth, in theory the main difference is for home births the additional costs for maternity care assistance (during and immediately after birth) and for short-stay hospital births the additional costs of using the hospital facility. Does this explain the difference you found?

29. Intention-to-treat analyses are important to avoid bias, but in this case I am not sure that the right choices are made. I would have preferred a comparison between women without medical indications for secondary care, not only at the beginning of pregnancy, but also at the end. That would also give more insight in the different referral rates between the intended home birth group and the intended short-stay hospital group.

30. Comparison with other studies: again, this study is about costs for nulliparous women only.

31. Limitations: not all women in the study had the same possibilities to choose their place of birth, but they all had the opportunity (or: were asked) to express a preference, early in their pregnancy, even if they might have known that preference would not be realistic.

32. The use of general mean substitution, without any indication of the scope of that use at item level, is unsatisfactory.

Conclusions
33. in the second sentence add information about parity:.…two groups of women giving birth for the first time.

34. Third sentence: For some (not in general), the obstetric system is currently (and has been so for a long time) a topic of debate, not despite the high rate of home births in the Netherlands, but because of it.

35. Last sentence: If you say there is no difference between the costs for the women in your study, do you really mean the women themselves (for instance the obligatory co-payment for maternity care assistance or for use of the hospital facilities?) or do you mean the costs for the health insurance companies?

Tables
36. Table 1: is a midwife assistant comparable with a GP assistant? If so, then why is the unit price per hour for midwife assistants so much higher than the unit
price per hour for GP assistants?

37. Table 2: the response rate on a questionnaire is 76.6%. Is this the first questionnaire, the second, or the third, or all questionnaires combined? I assumed that 449 first questionnaires were returned.

38. The overall response of complete cases was 267, was that the number used in the base case analysis?

39. Tables 4 and 5: Please indicate the N in the analyses.

40. The lay-out of this table, as well as the next, is confusing, because of the horizontal lines, that separate the subtotals from the items they are based on (above the line) and give the impression that they are referring to the items below (between the lines).

41. Table 6: please indicate the N in the columns.

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1, 4, 16, 17, 33, 37, 38,

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6, 7, 9, 15, 19, 25, 26, 27, 32, 35, 36, 39, 40, 41

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Declaration of competing interests:
'I declare that I have no competing interests'