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# Home or hospital birth: A prospective study of midwifery care in the Netherlands

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## 1. Introduction

In 1965 two-thirds of all births in the Netherlands occurred at home. In the next 25 years, that situation became reversed with more than two-thirds of births occurring in hospital and less than one-third at home. Until the 1970's a woman with an uncomplicated pregnancy was expected to give birth at home. If she wanted to give birth in hospital she needed to be referred to an obstetrician, because independently practising midwives and general practitioners did not have access to hospital birth rooms. Because an increasing number of women preferred to give birth in hospital and it was feared that this would lead to unnecessary referrals and, therefore, unnecessary medicalisation (including unnecessary costs) hospitals slowly admitted midwives and their clients to use hospital birth rooms for a 'home birth away from home', that is: a birth taking place in hospital, but under the responsibility of a midwife or general practitioner.

In the seventies and eighties there was much debate about the advantages and disadvantages of home birth between advocates of total hospitalisation of childbirth and others who wanted to preserve the home birth option for women with uncomplicated pregnancies. This led eventually to this study in which the principal research question was: Is there a difference in obstetric outcome between women with low risk pregnancies planning to give birth at home and those planning to give birth in hospital. This question in turn led to other questions. Foremost among these were: why do some women with low risk pregnancies want to give birth in hospital, while others prefer to give birth at home; in what way are the experiences of labour and birth related to the place of birth; how can we

explain the variation in home birth rates among midwifery practices within well-defined geographical areas?

To answer the first research question an instrument was needed to measure the obstetric outcome. In perinatology 'outcome' is almost always defined in terms of mortality or serious morbidity. However, mortality and serious morbidity have become too infrequent to be useful, especially in a low risk population, where childbirth is expected to follow its natural course without the need for medical intervention. But what is often overlooked is, that interventions themselves can be regarded as integral aspects of poor outcome. Our instrument is therefore based on the novel concept of 'maximal result with minimal intervention'. To avoid the problem of defining what is normal or abnormal, we adapted the optimality concept of Precht [1] and Touwen et al. [2]. In this concept an optimal situation is defined as: a birth without complications or interventions occurring at the proper time and resulting in a healthy baby and a healthy mother.

## 2. Outcome

To measure differences in planned home and planned hospital births a Perinatal Outcome Index was constructed. This index comprised a total of 36 items: 22 items on childbirth, nine on the condition of the newborn, and five on the mother after birth. To control for possible effects of self selection in planning a home or hospital birth, a Perinatal Background Index was constructed, comprising a total of 31 items: nine items related to social and medical background, ten to obstetric history, and 12 to the present pregnancy. For each item an optimal value was defined on

the basis of current thinking and practice. The score on each index is the sum of the optimal items in them [3].

Analysis of the individual items within the outcome index showed the following results. In nulliparous women the individual outcome items showed few differences between home and hospital. Intervals longer than 12 h between rupture of membranes and birth, 'other problems' (including the need for sedation), and neonatal problems in the first 24 h (including benign items, such as checkup after instrumental delivery or blood glucose measurement, that cause mothers to worry) were more frequent in planned hospital births than in planned home births. In parous women there were more differences between planned hospital and planned home births: rates of referral during labour, inadequate progress, perineal laceration, episiotomy, medication in third stage of labour, placental retention, postpartum haemorrhage, and blood transfusion all occurred more frequently in planned hospital births.

Analysis of the individual items within the background index showed only a few differences between women choosing home or hospital birth, with women with a non-optimal reproductive history more often preferring a hospital birth. The background index was dichotomised to differentiate between women with a favourable and women with a less favourable background.

The Perinatal Background Index confirmed that the study population was indeed a population at low risk of perinatal complications. The Perinatal Outcome Index gave an adequate description of both the result and process of childbirth, with a lower score indicating a further deviation from the optimal situation of 'maximum outcome with minimal intervention'.

Comparing the Perinatal Outcome Index of women planning a home birth with that of women planning a short-stay hospital birth, separately for nulliparous and parous women, showed that there was no relation between the planned place of birth and the perinatal outcome in nulliparous women when controlling for a favourable or less favourable background. In parous women the perinatal outcome was significantly better for planned home births than for planned hospital births, with or without control for background variables [4].

### 3. Choice

Although selfselection seemed to have little impact on the results, the choice for a home or a hospital birth remains an important one. Therefore, the determinants of that choice were studied, using structural equation modelling (LISREL-analysis). It was hypothesized that a combination of personal and social factors would explain the choice that was made. The analyses indicate that social factors, based on trust in home birth as perceived by significant others and the expectations of hospital care during childbirth, were by far the strongest predictors of

choice. Personal factors, based on perceived health status before and during pregnancy, existence of minor symptoms and fear of pain or complications during childbirth, were found to play only an indirect role. Demographic variables such as age, education and urbanization, were not found to have an effect in this study.

### 4. Experience

When complications arise during a planned home birth and specialist help is needed, the woman will have to go to hospital. Advocates of hospitalization of all births argue that this transfer during labour must be a most disappointing and demotivating experience and should, therefore, be avoided by planning a hospital birth. Advocates of home birth, on the other hand, argue that women who want to give birth in hospital always experience transfer during labour (in general a woman will go to hospital when labour is well established) while most of the women who want to give birth at home will not have to go through that experience. There is a difference, however. Women planning a hospital birth know beforehand and can prepare for this 'planned' transfer, while women planning a home birth are confronted with an 'unplanned' transfer, because of existing or anticipated complications. Our research shows, contrary to expectations, that this unplanned transfer to hospital has little influence on the way the childbirth is experienced. On average, women who were transferred are (very) positive about the birth, the early puerperium and the attendance of the midwife. Satisfaction with birth and the puerperium is primarily associated with the obstetric result and the physical and psychological wellbeing a few weeks after the birth.

### 5. Practices

The variation in home birth rates, planned as well as actual, among midwifery practices was analyzed with multi-level modelling. We found that client characteristics, such as age and parity, and case-specific factors, such as medical condition and referral to specialist care, are significant factors in explaining the planned and actual hospital (or home) birth rate in a midwifery practice, but they do not explain all of the differences among practices. These differences appear to relate primarily to structural factors and midwife/practice characteristics. The distance to the hospital and the midwives' attitudes toward home birth and toward non-medical reasons for hospital birth are significant determinants of the variation among practices in both planned and actual hospital birth rates. There are also indications that unsatisfactory working relations between midwives and obstetricians are related to higher referral rates.

The proportions of planned hospital birth and of referral

to specialist care are the most important predictors of the actual hospital birth rate of women receiving midwifery care. Our analyses showed that both can be influenced by the midwife through a positive attitude toward home birth, a critical approach toward non-medical reasons for hospital birth, and good cooperation with specialist obstetricians [5].

## 6. Conclusion

Our study has shown that for women at low risk of obstetric complications, the outcome of planned home births is at least as good as the outcome of planned hospital births for first time mothers, while for other mothers the outcome of planned home births is significantly better. This study also has shown that the choice whether to give birth at home or in hospital is based primarily on social factors, with the confidence of family and friends in home birth and the expected influence of the hospital environment on childbirth listed as the strongest determinants. Because in general all women are inclined to repeat their initial choice in a consecutive pregnancy, special attention is needed for the choice made by first-time mothers, as any increase in their choice for hospital birth will inevitably lead to a further decrease in the home birth rate. To maintain confidence in home birth and reduce the fear of unplanned transfer to hospital, leading to

an increased choice for hospital birth, it is essential that certain conditions are met. One of these is a well functioning selection system to ensure that only those women who are really at low risk are offered the opportunity and are encouraged to give birth at home. Equally important is appropriate access to specialist care to be able to respond adequately to unexpected complications. To meet these requirements good cooperation between midwives and obstetricians is essential to ensure that all women, regardless of the place of birth, receive the care they need.

## References

- [1] Prechtl HFR. The optimality concept (Editorial). *Early Hum Dev* 1980;4:201–5.
- [2] Touwen BCL, Huisjes HJ, Jurgens-v.d.Zee AD, Bierman-van Eendenburg MEC, Smrkovsky M, Olinga AA. Obstetrical condition and neonatal neurological morbidity. An analysis with the help of the optimality concept. *Early Hum Dev* 1980;4:207–28.
- [3] Wiegiers TA, Keirse MJNC, Berghs GAH, van der Zee J. An approach to measuring quality of midwifery care. *J Clin Epidemiol* 1996;49:319–25.
- [4] Wiegiers TA, Keirse MJNC, van der Zee J, Berghs GAH. Outcome of planned home and planned hospital births in low risk pregnancies: prospective study in midwifery practices in the Netherlands. *Br Med J* 1996;313:1309–13.
- [5] Wiegiers TA. Home or hospital birth. A prospective study of midwifery care in the Netherlands. Utrecht, NIVEL, 1997. Thesis Leiden University.