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Homebirth organised in a caseload midwifery model with affiliation to a Danish university hospital – A descriptive study

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ABSTRACT

Objective: To describe birth and neonatal outcome in women initiating a homebirth and cared for by a caseload midwifery teams with affiliation to a university hospital. Further, to describe the rate, time, and reasons for transfer between home and hospital.

Design: A descriptive study using prospectively collected registry data on initiated homebirths.

Results: A total of 268 women initiated a homebirth and 192 actually gave birth at home, equal to 1.99% of all births in Aarhus Municipality. The majority of the women who initiated a homebirth experienced a vaginal birth (92%) regardless of birthplace. Approximately 28% of the women were transferred from home to hospital during or after birth and 72% of the women had a homebirth as planned. Two children (both born in hospital) were admitted to the neonatal care unit requiring minor observation or treatment.

Conclusion: The majority of the women included in this study experienced a vaginal birth including those being transferred from home to hospital. Main reasons for being transferred were slow labor progress and rupture of membranes > 18 h. The majority of those being transferred were nulliparous women and most transfers happened during birth.

Background

Today, most women in the western countries give birth in hospital. Even though it is possible to provide women-centered care in hospital, the medical model of care may unknowingly play a dominant role. Predominant use of the medical model of care in childbirth may be responsible for an increasing use of unnecessary interventions in childbirth [1]. Homebirth may thus be preferred by women who experience lack of choices supporting a more women-centered model of care [2]. Homebirth fundamentally offers a women-centered approach to childbirth [3] and is considered safe for women with low-risk pregnancies in settings where homebirth is a well-integrated part of maternity care [4,5].

Caseload midwifery where women have a primary midwife assigned to them also supports a women-centered model of care where development of a relationship between the woman and the midwife may help to meet the woman's preferences. Caseload midwifery care in antenatal, intrapartum, and postnatal care has shown remarkable results with improved outcomes for both the mother and the newborn [6,7]. Moreover, working in a caseload model of care may also benefit the midwife experiencing a higher job satisfaction and less burn out [8–10].

However, choosing homebirth may also include a transfer from home to hospital during or after birth [11,12]. Evidence is limited and conflicting on how midwives and women experience such a transfer from home to hospital. Two studies reported that transfer from home to hospital may affect the birth experience [13,14], whereas another study found it had little impact on the birth experience [15]. Women transferred from home to hospital may experience a lower sense of control, but their level of control was not lower compared to women giving birth in hospital [16]. The decision to transfer a woman in labour from home to hospital represents a profound shift in expectations for both the woman and the midwife; this shift is important to be appreciated by hospital staff [17]. However, midwives may be able to manage the shift positively if they feel supported by colleagues and management [18].

In recent years the homebirth rate has increased from 1% to 3% in Denmark. Women's right to choose the birth place and safety issues regarding homebirth have been subject to intensive public debate. It has been suggested that women transferred from home to hospital mostly experience emergency transfers, which may further complicate the birth process and birth experience. However, evidence to support this argument is sparse. The aim of the present study was to describe birth outcomes in women who

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initiated a homebirth. Furthermore, the study describes the stratification of outcomes for women who were and were not transferred to hospital as well as time and reasons for being transferred.

Methods

A descriptive study using prospectively collected routine data on homebirths during a two-year period from 1 February 2015 to 31 January 2017 in Aarhus Municipality, Denmark. Women were eligible for inclusion if they planned a homebirth and initiated a homebirth at labour onset. Midwifery guidelines recommend homebirth if the women expect an uncomplicated singleton pregnancy with a foetus in cephalic presentation and spontaneous onset of labour between gestational week 37 + 0 and 42 + 0. According to Danish law, women have a legal right to choose their birthplace, including homebirth and to be assisted by a midwife. Even if the woman chooses to give birth at home against medical advice, her legal right to be assisted by a midwife is still valid. However, in this study women were excluded if they gave birth at home against medical advice or if the homebirth was an unplanned homebirth.

Data on the birth and neonatal outcome was collected from the database administered by Aarhus University Hospital (AUH) containing information on all births in Aarhus Municipality, both in hospital and at home. Immediately after birth, the attending midwife documents information about the birth and neonatal outcome in a structured birth registration form, which is entered into the birth database at AUH. Aarhus University Hospital is a public birth facility with approximately 5000 births annually and with tertiary neonatal intensive care unit services. In Denmark, midwives provide antenatal, intra-, and post-partum care regardless of choice of birth place. Healthcare in Denmark, including foetal ultrasound screening, antenatal, intra-, and post-partum care is tax-financed regardless of birthplace. No other public or private birth facilities are available in Aarhus Municipality.

All midwives assisting women giving birth in Aarhus Municipality are employed by the hospital. The hospital has four caseload midwifery teams ensuring continuity of care during pregnancy, birth, and the early post-partum period. Each team comprises three midwives and in total they care for approximately 10% of all women giving birth in Aarhus Municipality. The caseload midwifery team enrol women with low risk pregnancies and all women planning to give birth at home are cared for by a caseload midwifery team. The midwife continues to care for the woman if she is transferred from home to hospital. Transfer is mainly by ambulance and in some situations in the familýs own car.

Data analysis

Population characteristics will be presented with descriptive data on parity, birth and neonatal outcome including onset of labour, use of pain relief, foetal presentation, colour of amnion fluid, birth mode including water birth, birth position, post-partum haemorrhage, vaginal and perinatal tears, birthweight, Apgar score at 1 and 5 min, and transfer to neonatal intensive care unit (NICU). The mentioned outcomes will be presented for all initiated homebirths, and further stratified into homebirths with or without transfer to hospital (Table 1).

Further, a detailed description of transfer from home to hospital stratified in time of transfer (during or after birth) is presented in Table 2. Reasons for transfer from home to hospital are shown in Table 3.

The study was approved by The Danish Data Protection Agency (1-16-02-603-15). No other approval was necessary according to Danish law as the study was based on registry data.

Results

During the study period, 299 women initiated a homebirth; of these, 31 women were excluded due to the homebirth being unplanned or choice of homebirth against medical advice. In total, 268 women were included in this study. Of these, 192 actually gave birth at home; this is equivalent to 1.99% of all births in Aarhus Municipality. In total, 28% of the women were transferred to hospital during or after birth; 72% of the women had a homebirth as planned (Fig. 1).

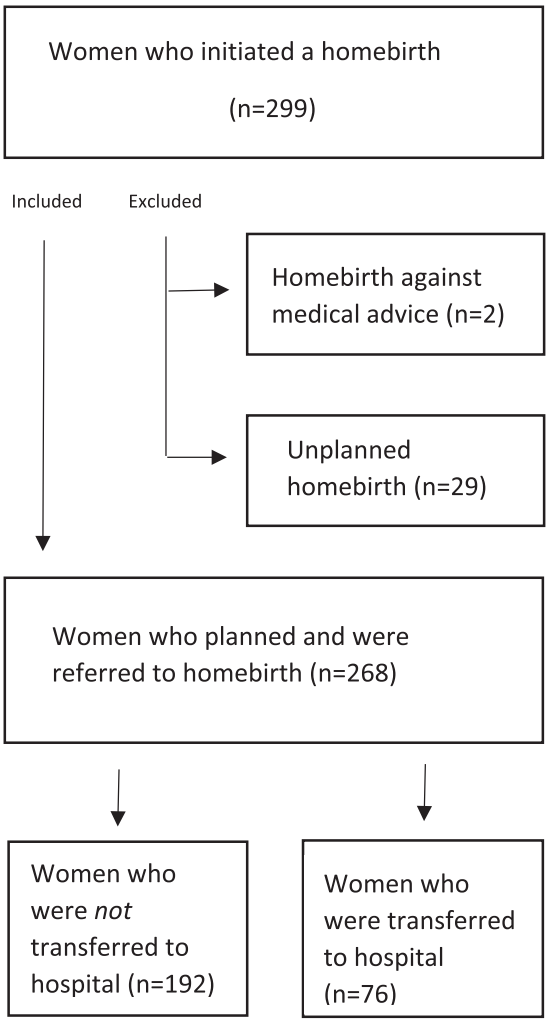

Fig. 1. Study population of women who initiated a homebirth in Aarhus Municipality from 1 February 2015 to 31 January 2017.

In general, a higher number of multiparous than nulliparous women planned a homebirth (56% versus 44%). However, more nulliparous than multiparous women were transferred to hospital (80% versus 20%) during or after birth. Contractions were the most common onset of labour (76%) followed by rupture of membranes (23%). Augmentation of labour was used in 10% of the total homebirth cohort and in 37% of those transferred to hospital. Use of any type of pain-relief was common and used in 72% of the women in the cohort. The highest prevalence was seen among those who were transferred (89%), and lowest among those who gave birth at home (65%). In total, 14% of the women had green amnion-stained fluid; this was experienced in up to 23% of the women transferred to hospital. The majority of the women in the cohort experienced a spontaneous vaginal birth (92%). Among those experiencing a transferred to hospital, 72% had a spontaneous vaginal birth, 12% had an assisted vaginal birth, and 16% had an emergency caesarean section. In ten of the 12 women who underwent an emergency caesarean section labour progress was lacking; the last two women underwent caesarean section due to suspected fetal distress although Apgar scores were (9/1, 10/5) and (10/1, 10/5), respectively. Nearly one third (31%) of the women in the cohort gave birth in water. Among the women who gave birth at home, 37% had a waterbirth. Upright birth position (standing, sitting or knee-elbow position) was the most common position among the women who gave birth at home without transfer to hospital (44%); supine position was the most common among women transferred to hospital (58%). In the homebirth cohort, occurrence