

Birth before arrival — is there anything to be afraid of?

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ABSTRACT

Over the past centuries maternal and neonatal morbidity and mortality has fallen dramatically. This is mainly due to the fact that we achieved a lot in the field of medicine in a very short amount of time. Evidence, mostly from Europe but also from US, suggested that home birth can be relatively safe provided the appropriate conditions are met. The question is “What if something goes wrong?” How to increase patient safety in the case of birth before arrival (BBA) or it may not be associated with any increased risk?

Our study review nowadays available articles and describes rates, obstetrical characteristics and perinatal and maternal outcome of unplanned out-of-hospital deliveries.

Key words: pregnancy; BBA; OOH; paramedics

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INTRODUCTION

Out-of-hospital birth can occur as planned or unplanned. Most of planned childbirths take place at home in the care of dedicated midwife. However, situation of that sort may happen unplanned. The term — birth before arrival (BBA) — is defined as a delivery of a baby that takes place outside healthcare facilities. It also includes home or enroute to a delivery centre or hospital (in an ambulance, private car or on hospital grounds) and are not attended by a midwife. [1, 2].

The incidence of BBA varies worldwide. Overall, rate of BBA in developed countries is less than in developing countries. It is 0.1–0.44% in Europe [3], 1.36–1.8 % in USA [4], 1.8–4.6% in South Africa [5].

Out-of-hospital birth is connected with adverse perinatal outcome and increased neonatal mortality [6, 7].

Our study aims to review the available articles and describes rates, obstetrical characteristics and perinatal and maternal outcome of unplanned out-of-hospital deliveries.

HISTORICAL VIEW

Undoubtedly, looking at human history — most people who lived on our planet have been born at home or in communities. However, it does not mean that it is the best or the safest idea of giving birth. What it means is that, frankly

recently, we managed to achieve plenty in the field of medicine in a very short amount of time. And it changed the idea of labour dramatically. The beginning of the hospital births is estimated for the 18th and 19th century but was not the luxury it might seem to be [8, 9]. Patients who were well-off chose to employ an accoucheur and give birth at home [10]. Hospital births concerned only poor and destitute part of society — in order to provide them with support. Therefore, as is easy to guess, hospital delivery was surprisingly not connected with benefits or increased safety [8, 9].

In the middle of 19th century quite a revolution took place. There has been an understanding of bacterial infection, sepsis, and the development of antiseptic techniques [11]. In 1876, an Italian obstetrician Eduardo Porro described his method of amputating the body of the pregnant uterus and stitching the cervical stump as a way to deliver a baby [12]. In 1882, gynaecologist Max Sänger, described the use of a double layer of sutures to close the uterine incision in order to preserve this organ after delivery. It was beginning of the classical operation era [13].

Increasing perfection of surgical techniques coincided in time with the introduction of blood banks and using antibiotics which together led to further extreme reduction of maternal mortality (Fig. 1) [14, 15].

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Maternal Mortality Ratio, 1847 to 2015

The maternal mortality ratio is the number of women who die from pregnancy-related causes while pregnant or within 42 days of pregnancy termination per 100,000 live births.

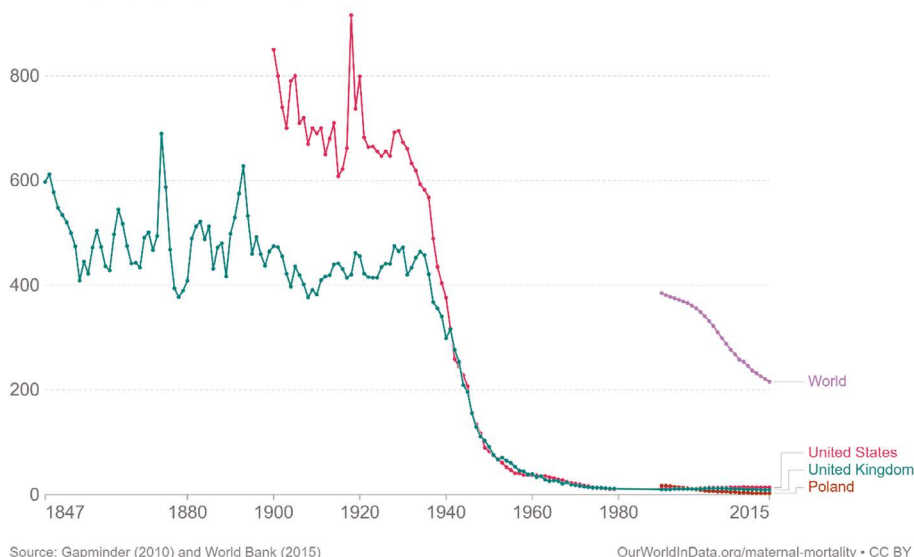


Figure 1. Maternal Mortality Ratio 1847 to 2015

NEONATAL OUTCOMES

Out-of-hospital delivery is indisputably associated with worse perinatal outcomes as well as increased neonatal mortality compared to hospital deliveries [16, 17]. The most unfavourable result described was hypothermia [18, 19]. In most studies, neonatal morbidity and mortality were defined as death or neonatal intensive care unit (NICU) hospitalization at day 7. Neonatal mortality varied widely between the different cohort studies. Moscovitz et al. [20] reported in their study 9 neonatal deaths among 91 out-of-hospital deliveries (9.9%). On the contrary, McLelland [21] reported nine (2.7%) neonatal deaths, including three that were not viable being less than 24 weeks gestation. In a French research study NICU hospitalization or death was recorded in 106 newborns (6,3%) [22]. Ovaskainen et al. [17] found out that out-of-hospital cases were more often admitted to neonatal departments due to infection or hypothermia.

Other complications that have been confirmed in many studies included higher rate of prematurity and lower birth weights [23, 24]. There were also evidence that prolonged transportation time is significant predictor of neonatal mortality among newborns. Moreover, it is clear that proper neonatal intervention before and during transportation significantly decreased neonatal morbidities and mortality [25, 26].

MATERNAL PROFILE AND OUTCOMES

Most previous published papers focused on a neonatal outcome. There have been a few reports of maternal morbidity but the results sometimes contradicted each other [23, 27].

BBA mothers, according to many studies, were characterized by young age and low education. Being multipara, attending antenatal care visits ≤ 4 , experiencing preterm birth and rapid labour progression were also named as significant common attributes [28, 29]. An explanation for these factors may be the fact that younger women are less likely to take proper medical care of themselves and that they lack awareness of childbirth. Low education significantly affects their basis and decision about health care. Then, the insufficient number of ob-gyn check-ups effect in poor antenatal education. Furthermore, multiparity and short labour duration are likely to lead to faster childbirth what contributes to BBA.

Women with BBA have increased risk of postpartum haemorrhage and it's the leading cause of maternal death during the immediate postpartum period [23]. In every 4 min one female dies due to massive postpartum haemorrhage [30].

WOMEN'S EXPERIENCES WITH BIRTH SETTING

Research showed that every fifth woman in Western countries is afraid of childbirth. It is simply fear of the unknown. Making effort to reduce this anxiety is essential as it might have a direct negative effect on childbirth process. It is also important to try to minimize stress, to have positive experience of breastfeeding [31]. Access to prenatal medical care and therefore to education seems crucial in this case.

Childbirth may be certainly a beautiful event for many women. However, in the absence of support from medical

professionals and/or family relatives, it can only contribute to negatives. Elina Svedberg et al. [32] in their pilot research described women's experiences of unplanned prehospital births. The results showed that the women are not prepared to give birth to a child outside the hospital, and the course of events usually happen too quickly to adjust. A BBA from the patients' point of view is often described as a tumultuous event. It is also worth highlighting that the patients felt dissatisfaction, frustration, and even shame. Additionally, they blamed themselves and/or their partners for not getting to the hospital in time [32]. In another study, most women despaired of no one being there to help when they understood that they were in labour too advanced to make it to the hospital. Most women described childbirth dramatically, however they were also proud of themselves and/or took responsibility for finding themselves in labour without professional care [33].

TRANSFER TO HOSPITAL

Paramedics play important role in BBA — they provide intrapartum, immediate postpartum and neonatal care. Cases of BBA are described by paramedical staff as “infrequent”, yet often “normal” and “uncomplicated”. Unfortunately, it turns out that pre-hospital care has not always been carried out properly. For example, several cases documented fundal massage prior to the birth of the placenta. This procedure, is associated with unequal separation of the placenta from the fundus and could contribute to excessive maternal blood loss [34, 35]. Also, as mentioned before, the most common complication among neonates was hypothermia. Despite the existing recommendation of wrapping the baby in cling-wrap or plastic-film with the head exposed without drying beforehand, the paramedic teams did not reported it as their routine [34].

Gayle McLelland et al. [36] reported complications encountered by paramedics at OOH (out-of-hospital) births such as: breech presentation, shoulder dystocia, face presentation, cord prolapse, twins and PPH.

Therefore, the fact that paramedics most often aid BBA patients, it is important to provide sufficient education (including practical skills) to effectively care for them during this period. It is crucial for paramedics to grow confidence that they would be able to secure both the baby's adapting process to the extra-uterine environment and that third stage of labour is progressing without maternal complications. Moreover, ideally, they should have clinical abilities to respond early to any complications that may arise.

CONCLUSIONS

As medical advances were increasing there can be observed the growth of safety for both mothers and their newborns. This contributed to the rising number of patients

who decide to give birth at the hospitals. BBA could be the new real problem in the medicine that the paramedics and obstetricians share and face together. In the upcoming years this issue may need more attention due to the popularization of the more natural approach to labour, demedicalization and seemingly safety of home birth. In most studies, the general condition of the mother and newborn after BBA were described as good. For the mother, the greatest risk was postpartum haemorrhage, and for the newborn, hypothermia, which may be effectively prevented by encouraging skin-to-skin contact between mother and child. Undeniably, a tremendous piece of work in this field is done by well-trained emergency medical teams, who are the first to take care of both patients.

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Conflict of interests

Authors declare no conflict of interests.

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