Chapter 2

Haemorrhage after home birth: audit of decision making and referral (part 1)

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SUMMARY

In the Netherlands, 20% of women give birth at home. In 0.7%, referral to secondary care because of postpartum haemorrhage (PPH) is indicated. Midwives are regularly trained in managing obstetric emergencies. A postgraduate training programme developed for Dutch community-based midwives called 'CAVE' (pre-hospital obstetric emergency course) focuses on the identification and management of obstetric emergencies, including timely and adequate referral to hospital. This descriptive study aims to identify substandard care (SSC) in PPH after home birth in the Netherlands. Sixty seven cases of PPH reported by community-based midwives were collected. After applying selection criteria, seven cases were submitted to audit. The audit panel consisted of 12 midwives (of which seven contributed a case), 10 obstetricians, an educational expert and an ambulance paramedic. First, an individual assessment was performed by all members. Subsequently, at a plenary audit meeting, SSC factors were determined and assigned incidental, minor and major substandard care.

INTRODUCTION

Virtually all pregnant women in the Netherlands have midwifery care at some point during pregnancy, birth or the puerperal period. Of the 2,444 registered midwives in the Netherlands, 77% are working in a community-based primary care facility. Another 23% work in hospitals, under the supervision of obstetricians, where they provide care for medium and high risk pregnancies and births. [1] In 2008, 20.9% (n=37,078) of all children in the Netherlands were born at home, supervised by a community-based midwife. The referral to secondary care rate during birth is approximately 32%. If referral is indicated, however, only 3-5% is urgent, such as for fetal distress, postpartum haemorrhage (PPH), retained placenta or need for transfer of the newborn to a neonatologist. [2] In 2008, of all intra-partum referrals of women under the care of a community-based midwife, 0.7% was referred because of PPH and 0.9% because of retained placenta. [3] A recent review has shown an increase in PPH in industrialised countries; it is unclear whether this rise can also be seen in low risk births. [4] A nationwide study into severe maternal morbidity in the Netherlands identified major obstetric haemorrhage (defined as a need for transfusion of four or more units and/or embolisation or hysterectomy) in 1.6 per 1000 home births compared to 6.1 per 1000 hospital births. [5] In case of an obstetric emergency after home birth, community-based midwives require skills to adequately manage these complications and provide optimal care. As students, midwives are taught to start intravenous access at home for stable transport to hospital. Due to the low prevalence of such emergencies, these skills should be regularly updated and taught repeatedly. [6] At present no guideline exists in primary midwifery care for the management of PPH after home birth in the Netherlands. A postgraduate pre-hospital obstetric emergency course ('CAVE') specifically developed for Dutch community-based midwives, focuses on the identification of obstetric emergencies and their management, including timely and adequate referral to hospital. [7] Although this programme is not mandatory for licence renewal, over 90% of all community-based midwives have attended (www.hotabc.nl, in Dutch). Although rare and unexpected in low risk pregnancies, PPH is a serious complication of childbirth, which can have immense consequences directly for the mother and for her future in childbearing. Studies have shown that substandard care (SSC) can be identified through audit, an effective method of evaluating care provision which often leads to constructive discussion within a medical team on policy and quality of care. [8,9] The aim of this study was to audit cases of PPH after home birth in order to identify SSC. And, if SSC factors are present, lessons for improvement can be drawn and used in guideline development.

METHODS

Ethical approval was not required; all cases were anonymously provided and not accessible for the researchers or panel members (except for the midwife presenting the case).

Participants and data collection

All community-based midwives (n=366) who registered for the 'CAVE' course were asked to participate in this study. From April 2008-April 2009, participants were asked to report the following obstetric emergencies to the researchers upon finishing the course: PPH (> 1000 mL blood loss, estimated or weighted), including retained placenta, shoulder dystocia, prolapsed umbilical cord, unexpected breech birth, (pre) eclampsia and resuscitation of the newborn or mother. Participants received a monthly e-mail linked to a password secured internet site. When obstetric emergencies were reported, participants were asked to fill out a detailed case registration form (CRF) containing information on received care during pregnancy and birth and maternal and neonatal outcome. Anonymous medical files, discharge letters and laboratory results were requested. If data were incomplete or inconclusive, the participants were contacted for missing documents to be completed.

Previous to the audit, selection criteria were determined by the study group containing the authors. Cases of PPH were eligible for audit if: PPH occurred after home birth under care of a community-based midwife; referral to hospital by ambulance was necessary; complete documentation of the case was available; and if the community based midwife was able to attend the audit meeting.

Methods of audit

The audit panel consisted of 12 midwives, 10 obstetricians, an educational expert and an ambulance paramedic. Of the 12 midwives, seven were working in the community and they all contributed a case for the audit. Almost all panel members work daily in obstetric care and some actively participate in (perinatal) audits and guideline development.Substandard care factors have been previously described and successfully applied in cases of maternal morbidity and mortality. [5, 8-11] The scoring system suitable for this audit on PPH was developed by consulting various sources; national guidelines for PPH in secondary obstetric care and obstetric emergency course manuals were scrutinised in order to establish a list of factors contributing to care in case of PPH after home birth. [7,12,13] A list of 32 items was established, divided into two sections: general care and specific care in case of PPH (see Table 1). Each panel member was asked to perform an individual assessment of medical records of all cases (individual audit)

before the plenary audit meeting.Panel members assessed whether risk selection prior to the decision to give birth at home had been appropriate and whether SSC factors had been present during pregnancy and birth at the level of the patient, the care provider or the healthcare system (see Table 1). Care was considered substandard if it deviated from national guidelines or, in the absence of guidelines, if care deviated from best available evidence or expert opinion. Additional SSC items concerning specific management of PPH, referral and transport to hospital were also scored. Panel members were required to send the audit forms back by post prior to the plenary meeting, and the forms were analysed by calculating the number of SSC factors per scoring item (see Table 1). For example, when the item 'Inadequate risk selection' has a high score, it indicates that a majority of assessors judged that SSC was provided on this item, in this particular case. The maximum score for SSC was calculated using number of assessors x number of cases x 32 scoring items: 24 x 7 x 32 = 5,376 items.

During the plenary audit meeting, all cases were discussed. The community- based midwives who submitted the cases supplied background and additional information, when necessary. The ambulance paramedic could supply the panel with background and /or contextual information on the responsibilities and procedures during transfer to hospital. After discussion, panel members re-assessed the case for SSC using the same audit form and were requested to rate each case individually and anonymously in order to assure an objective judgement. Finally, at the plenary session, panel members were asked to make a classification of SSC, a grading system derived from the Confidential enquiry into stillbirths and deaths in Infancy and applied in other audits. [14] The grading system consisted of three levels of SSC: incidental: lessons can be learned from the case, but a different policy would not have changed the outcome; minor: different care would probably have led to a better outcome; and major: different care would definitely have given a better outcome. Consensus was reached if the majority of the panel (>50% of the members) classified the care as substandard.

Table 1 Substandard care scoring items as used in the audit form and their contribution concerning general care and specific management of PPH after the individual audit.

General care scoring items	n	%
Patient	**23**	**7.5**
Patient delay consulting doctor / midwife	13	4.2
Refusal of medical help or advice	10	3.3
Midwife	**108**	**35.3**
Inadequate risk selection	25	8.2
Inadequate antenatal care	12	3.9
Delay in recognition of symptoms / signs	27	8.8
Delay in referral to obstetrician	44	14.3
Obstetrician	**13**	**4.2**
Inadequate risk selection	3	0.9
Delay in recognition of symptoms / signs	2	0.7
Delay in treatment after diagnosis	8	2.6
Healthcare system	**162**	**52.9**
Homebirth influenced outcome	60	19.6
Medical assistance arranged too late	44	14.3
Quality of transport influenced outcome	32	10.4
Ambulance was not present within acceptable time	26	8.5
Total	**306**	**100**

Specific management of PPH scoring items	n	%
Oxytocin was not administered according to guidelines	56	10.5
No uterine massage was administered	17	3.2
Inadequate maternal monitoring (pulse, blood pressure)	52	9.7
No oxygen was administered by midwife	91	17
No oxygen was administered by gynaecologist	42	7.8
None or too late bladder catheterisation	44	8.2
Inadequate stabilisation of patient for transport	15	2.8
No intravenous line was started by midwife / GP	87	16.2
Intravenous line was started too late overall	45	8.4
No volume replacement was started by midwife	46	8.6
Suboptimal treatment of PPH according to guidelines	41	7.6
Total	**536**	**100**

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