Measuring the quality of documented care given by Swedish midwives during birth.

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Published in:
Midwifery

DOI:
10.1016/j.midw.2010.07.001

2011

MEASURING THE QUALITY OF DOCUMENTED CARE GIVEN BY SWEDISH MIDWIVES DURING BIRTH

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Abstract

Objective: to measure the extent documented Swedish midwifery care for low risk labour and birth followed WHO's recommendations for care in normal birth and to compare midwifery care given to women who's labours could be classified as low and high risk.

Study design: A retrospective examination of midwifery and medical records, 144 from women with low risk births and 54 from women with high risk births, for aspects of pregnancy, labour and birth using a validated instrument based on WHO's recommendations.

Setting: Southern Sweden.

Outcome measurements: Care given in accordance with WHO's four categories of practice and changes in risk group during the birth process.

Findings: Care interventions not recommended by WHO, such as routine establishment of an intravenous route, routine amniotomy during the first stage, continuous electronic fetal monitoring and pharmacological methods of pain relief were widespread in the records. Documented care differed little between the labours of women at low risk and high risk. The midwives at the unit under study did not routinely carry out risk assessment.

Key conclusions and implications for practice: The mode of care was one of readiness for medical intervention. The act of carrying out risk assessments at the time of the woman's admission may affect awareness of the level of care offered to birthing women and thus help to reduce the number and variety of practices not recommended by WHO.

Keywords: midwifery care, WHO, low risk, high risk labour, birth process

Introduction

Care given to women during normal labour has changed considerably over time (WHO, 1996). The rapid development of technical aids has led to praxis becoming established before sufficient evaluation has been carried out. In 1996, a group of doctors, nurses and midwives under the auspices of WHO, evaluated the available evidence about the most common interventions used during normal labour. The document produced by this group of experts was published by the World Health Organization (WHO, 1996) as a recommendation for evidence-based care in normal birth. Although the recommendations are from 1996, researchers have found that they are still useful since they are in line with today's recommendations and evidence (Chalmers et al., 2009). It is known to a limited extent how these recommendations are followed in midwifery care.

In Sweden midwives are responsible for care of women with a normal pregnancy and birth. They collaborate with physicians when complications occur. Almost all (99%) of women give birth in hospital. Most commonly, midwives work either in community-based antenatal clinics or in hospital and therefore the midwife at the delivery unit is often unknown to the birthing woman. Almost all maternity care in Sweden is financed by the public health sector through taxes.

Service user's medical records are the most important source of information and correct documentation is important for patient safety and for communication between care givers and between care departments. According to Swedish law (SFS, 2008:355) all care must be documented and the documentation should be used to ensure good and safe health care. Earlier studies of documented care from Sweden have suggested that midwifery care given to

women whose pregnancy and labour are considered low risk, differs little from the care given to those considered at high risk (Sandin-Bojö et al., 2006; Sandin-Bojö & Kvist, 2008). Since risk status can change for many reasons, suggestions have been made that it would be interesting to measure the process of intrapartum care (Wiegers et al., 1996; Murphy & Fullerton, 2001; Sandin-Bojö et al., 2004). Instruments with and without a theoretical base have been developed to allow measurement of the birthing process (Greener, 1991; Wiegers et al., 1996; Chalmers & Porter, 2001; Murphy & Fullerton, 2001; Sandin-Bojö et al., 2004). Two of these are based on WHO's recommendations (Chalmers & Porter, 2001; Sandin-Bojö et al., 2004) and may be applied to documented care. Sandin-Bojö's instrument contains a comprehensive coverage of practices recommended or not recommended and is suitable for use for quality development projects at individual hospitals. Chalmers and Porter's instrument is more condensed and may be suitable for large national evaluations.

The aims of the present study were to measure the extent to which documented Swedish midwifery care for low risk labour and birth followed WHO's recommendations for care in normal birth, and to compare midwifery care given to women who's labours were classified as low and high risk.

Methods

The study was carried out as a retrospective examination of midwifery and medical records of pregnancy, labour and birth. The instrument used to examine the records was developed in Sweden by Sandin-Bojö et al (2004) and is based on the recommendations made by WHO. Although there is no international consensus on definitions of high risk status, it is possible with this instrument to measure whether the care provided differs according to whether the woman's pregnancy and labour are judged to be low risk or high risk, by examining the medical records of the woman's admission to the labour ward. The instrument allows a

detailed description of care given during labour and birth and also identification of areas in need of quality improvement (Sandin-Bojö et al., 2006; Sandin-Bojö et al., 2007).

Selection of the midwifery and medical records

The study took place at a maternity teaching unit in southern Sweden with approximately 3000 births annually. The care under scrutiny was the care given by qualified midwives. For this reason, a medical secretary selected a convenience sample of medical records (100 from May 2008 and 132 from August 2008) when no students had been in practice at the unit. The records were taken randomly by the secretary from the piles of records on her desk and were not read prior to selection.

Examination of the records was carried out in an electronic records system. Some records of the birth process were also available in paper form, for example partograms, medicine sheets and CTG tracings. Records from women whose labours were induced, who gave birth via elective caesarean section or who were taken directly from the admission room for acute caesarean section were excluded.

Definition of low risk

Since there is no universal definition of low risk, the definition used in this study was taken from a doctoral dissertation where the author constructed a definition based on appraisal of the available literature (Sandin-Bojö, 2006). The criteria used to assess whether women had low risk pregnancy and labour were: labour starting between gestational weeks 37 + 0 and 41 + 6, foetal head presenting, normal foetal heart rate (110-150 beats per minute), clear liquor (if membranes were ruptured), spontaneous contractions, diastolic blood pressure <90 mm HG, no earlier obstetrical complications (caesarean section, foetal death, bleeding >1000 ml, rupture of the anal sphincter or other large perineal or vaginal ruptures) and no medical

conditions that required specialist care. Based on documentation in the records, the labours of all other women were considered as high risk labours.

The instrument and collection of the data

The instrument used was developed using the Delphi method and has been tested for inter-rater reliability and content validity (Sandin- Bojö et al., 2004). Later studies have validated the instrument (Sandin-Bojö et al., 2006, Sandin-Bojö et al., 2007) which is based on the four categories of practice in WHO's recommendations for care in normal birth (WHO, 1996):

Category A: Practices which are demonstrably useful and should be encouraged.

Category B: Practices which are clearly harmful or ineffective and should be eliminated.

Category C: Practices for which insufficient evidence exists to support a clear recommendation and which should be used with caution while further research clarifies the issue.

Category D: Practices which are frequently used inappropriately.

(pages 34-37).

The structure of the instrument follows the birth process; status on admission, care during first, second and third stages of labour and variables pertaining to choice of postnatal care options. The instrument comprises 70 questions which are used to scrutinize each set of medical records. Thus one study protocol is created for each set of records. The instrument is divided into background items (n = 7); age, parity, civil status, smoking, body mass index (BMI), nationality and occupation. Fifty-five items concern care and interventions within WHOs four categories; Category A (38 items), Category B (5 items), Category C (4 items) and Category D (8 items). Another 8 items relate to outcomes after birth; total length of labour, length of the first and second stages of labour separately, genital lacerations, change in

risk status after first stage, change in risk status after second stage, mother judged to be fit for discharge/ family care and baby judged to be fit for discharge/family care after the third stage. The questions are answered with pre-determined alternatives;"Yes"," No" or "No documentation/Not applicable". If an intervention was performed, a follow-up question was posed to the records, concerning the reason for the intervention. Since occurrences and practices during labour and birth may lead to a change in risk status, data were collected to allow an analysis of possible changes in risk status.

Data analysis

Two of the authors (ND and JR) examined the records together in order to reduce the risk of misinterpretation. The data were analysed using SPSS 15.0 and descriptive statistics were used for all variables. A separate analysis to compare midwifery care given to women at low risk with that given to women at high risk was carried out. Variables that hypothetically might be expected more often in the records of women with high risk pregnancy and/or birth than in those of women with low risk pregnancy and/or birth are shown in Table 4. Statistical comparisons for these variables were made using the chi-square test with Fishers exact test when values of less than five were expected. All tests were two-tailed and significance was accepted at the $p = \leq 0.05$ level.

Ethical considerations

The Advisory Committee for Research Ethics in Health Education at Lund University and the consultant-in-charge of the maternity unit gave permission for the study (VEN A73-08). First-line managers at the delivery ward were informed by two of the authors. It was stressed that the study did not aim to examine individual midwives' care but rather to study documented midwifery care as a whole. Each instrument protocol was given a unique number which

coincided with the birth number which was held by the secretary, to enable a return to the records when questions about the material arose during analysis. When analyses were completed the number was removed so that no individual women could be identified.

Findings

A total of 232 records were randomly selected by the secretary and examined by two of the authors (ND, JR). Of these, 34 (14.7%) fulfilled exclusion criteria for the following reasons: 17 of the women had their labours induced, nine gave birth via elective caesarean section and eight by emergency caesarean section for which there were no records of labour (taken directly from admissions to the operating theatre). Of the remaining 198 records, 144 (72.7%) were identified by ND and JR as coming from women with low risk births and 54 (27.3%) from women with high risk births. Of the 198 women, 185 had a spontaneous vaginal birth and the remaining 13 gave birth with the help of vacuum extraction.

Results from the analysis of care in women with low risk births are presented first, and are shown in WHO's four categories. A comparison between care in women with low- and high risk births is presented separately.

Characteristics of women with low risk pregnancy and birth

Table 1 shows characteristics of the low risk group. The age range of the women was 15 to 41 years with a mean age of 29.2 years (SD 5.1).

Insert Table 1 about here

Category A: Practices which are demonstrably useful and should be encouraged

On admission to the maternity unit

All of the women had visited an antenatal clinic during pregnancy. The number of visits to the

midwife varied between two and fifteen, with a mean of 9.5 (SD 2.4). A birth plan had been written by 70.1% of the women. On admission, the percentage of women for whom the midwife checked health status variables was as follows: blood pressure 63.9%, vaginal examination 98.6% and auscultation of the foetal heart rate 98.6%. The variable least often recorded was body temperature which was checked for 7.6%. In 30.6% of records, the amniotic membranes had ruptured and judgment of the state of the liquor was recorded in 99.3% of these records. On arrival at the unit, 90.3% of the women were in active labour and in 57.6% of records there was evidence that the woman's pain level had been assessed and in 47.2% of cases the woman had been asked about her preference for pain relief. In 11.8% of records there was documentation regarding the woman's wish for support and the presence of staff.

During the first stage of labour

WHO recommends that midwives observe the welfare of the woman and baby during labour by measuring variables from Category A. These are shown in Table 2, together with percentages of those for whom an intervention was used or not and percentages for the "Not applicable" response.

Insert Table 2 about here

Table 2 shows that the use of a partogram and judgment of the liquor were found to a large extent in the records. In contrast, intermittent auscultation of foetal heart rate was documented in 9.7% of records and the woman's pulse in 2.8% of records.

During the second stage of labour

Midwives' documentation showed that 27.8% of the women gave birth in a non-supine position. Intermittent auscultation of the foetal heart rate continued to be recorded for 9.7% of cases.

During the third stage of labour

In 66.7% of records the baby had been placed skin-to-skin with the mother after birth and for the remaining women there was no documentation. A large proportion of women (77.8%) were given an injection of oxytocin postpartum. In 100% of records, examination of the placenta and membranes was documented. Other variables that were frequently documented were, total blood loss (99.3%), contraction of the uterus (99.3%), and whether the woman had passed urine after the birth (98.6%). Variables that were documented to a lesser degree were blood pressure and temperature which were found in 8.3% and 0.7% of records, respectively. The woman's pulse was not documented in any of the records. The woman's experience of birth was found in 42.4% of the records.

Category B: Practices which are clearly harmful or ineffective and should be eliminated

On admission to the maternity unit

An enema was given to 20.1% of the women. Of these, 41.4% had requested an enema and for the remaining women the documentation for reason for the procedure was missing.

During the first stage of labour

There was documentation of establishment of an intravenous route (IVR) in 47.2% of records. Of these, 97% of IVRs were established in case epidural anaesthesia or administration of oxytocin should become necessary. In two cases IVR was established without documented indication. Documentation was found for intravenous infusion for 32.6% of those who had an IVR established and for all of these the indication was epidural anaesthesia or oxytocin infusion.

During the third stage of labour

Ergometrine injection was documented for 1.4% and the indications were, haemorrhage, incomplete amniotic membranes or poorly contracted uterus.

Category C. Practices for which insufficient evidence exists to support a clear

recommendation and which should be used with caution while further research clarifies the issue

*During **the first stage of labour***

Amniotomy was performed on 57.6% of the women. The most commonly stated indication was to accelerate labour, in 79.4% of cases. Other indications for the use of amniotomy were no progress during two hours or more (11.1%) and suspected pathological foetal heart rate (9.5%).

During the second stage of labour

The application of fundal pressure by the midwife during birth was documented in 2.1% of cases and the indication for all of these was suspected pathological foetal heart rate. Intravenous infusion of oxytocin was used in 31.9% of births. The most commonly documented indication was that the infusion was carried forward from the first stage of labour, which was the case in half of the infusions. Other indications were tendency to weak uterine action (41.3%), compromised foetal heart rate (6.5%) and no progress in foetal descent during one hour (2.2%).

Category D: Practices which are frequently used inappropriately

On admission to the maternity unit

A labour ward admission test, which is a CTG registration on arrival at the maternity unit, was documented in 95.8% of records.

During the first stage of labour

Pharmacological pain relief was given to 86.8% of women. The most frequently reported were nitrous oxide (85.4%) and epidural (26.4%). Pain relief was given in the form of tablets (paracetamol) to 5% of women. CTG was used for 91.3% of women during the first stage of labour. In 73.6% of cases the CTG tracing lasted more than 20 minutes every 2 hours. For 62.5% there were no registered indications for the use of CTG.

Augmentation of labour using oxytocin during the first stage was documented in 17.7% of records. The indication for this was in 58.3% arrested labour, although the duration of arrest was unspecified. In 20.8% of cases the indication was suspected pathological foetal heart rate. For 3% of women their bladder was emptied by catheterisation. The indication for all of these was that the woman was unable to spontaneously empty her bladder. Amounts of urine found in the bladder varied from 25 to 900 ml and the mean was 282 ml.

During the second stage of labour

Augmentation of labour using oxytocin infusion was documented in 32.3% of records. Pharmacological pain relief during the second stage of labour was documented for 86.1% of women. Several different methods can be used simultaneously and the method most often documented for these women was nitrous oxide, used by 99.2%. One birthing woman was encouraged to bear down before she felt the reflex to do so. The indication in the records was suspected pathological foetal heart rate and preparation for vacuum extraction. Birth was completed instrumentally for 6.3% of women. The documented indications for these deliveries were suspected foetal hypoxia and in one case exhausted woman. Episiotomy was carried out for seven (3.5%) of the women. Six of these had a spontaneous vaginal birth and one gave birth with the help of vacuum extraction. The documented indications were prophylactic episiotomy because of tense perineum and in one case suspected foetal hypoxia.

Documentation of the labour process

The total duration of the first and second stages of labour together was less than 24 hours in 98.6% of births. In 58.3% of records the first stage of labour was less than 12 hours. The length of the second stage of labour was less than one hour for 90.3%. During the birth 61.8% of women sustained some form of genital laceration. Women had often a combination of lacerations but perineal laceration accounted for 73% of all tears. Pain relief for suturing was

documented for 96.6% of women.

Changes in high risk status during the birth process

After the first stage of labour

After the first stage of labour 79 (54.9%) of the original 144 women with low risk labours could still be considered as low risk (Table 3). The most common reason for change in high risk status was the use of epidural anaesthesia, which was used for 52.3% of those who changed to high risk labour. Meconium stained amniotic fluid was the documented reason for change to high risk status in 27.7% of cases. Other indications for change were augmentation with oxytocin infusion (10.8%) and suspected pathological CTG tracing (7.7%).

Insert Table 3 about here

After the second stage of labour

Table 3 shows that after the commencement of the second stage of labour a further eight women's labours changed to high risk status. These changes were caused by the use of oxytocin augmentation in six cases and by vaginal bleeding in two cases.

After the third stage of labour

In a total of 76% of births the mother and child fulfilled criteria for care in family rooms or for discharge home. These were therefore considered as at low risk after the third stage of labour.

A comparison between care given during low risk and high risk birth using variables that should, hypothetically, occur more often in high risk births

Results of the comparison between the 144 records of women with low risk births and the 54 records of women with high risk births are shown in Table 4. In women with high risk births, amniotomy during the first stage of labour was carried out significantly less often than for

women with low risk births (p <0.01). This practice belongs to Category C- *practices which should be used with caution until further research clarifies the issue.*

Discussion

The aims of this study were to measure to what extent documented midwifery care in women with low risk labour and birth followed WHO's recommendations and to compare midwifery care given to women whose labours could be classified as low risk and high risk. It is clear from the results that the mode of care was one of readiness for medical intervention, which, for example, can be seen in the large number of women for whom an IVR was established. WHO classes this practice as harmful (WHO, 1996) because it invites unnecessary interventions. It is possible that in this study the availability of an IVR may be part of the reason why as many as 32% of the records showed that intravenous oxytocin was administered. The use of CTG for more than 20 minutes every two hours for 73.6% of women with low risk labours is another indication of a readiness for medical intervention. It is remarkable that the use of CTG, both for labour ward admission tests and for long periods of surveillance during labour continues, despite lack of any strong evidence for its ability to improve outcomes (Blix, 2001; Mires et al., 2001; Neilson, 2006; Alfirevic et al., 2006). Research has shown that in low risk labour, CTG admission tests cannot determine which infants will have foetal distress because the sensitivity is too low and there are too many false-positive tests (Blix, 2001; Mires et al., 2001).

A recent national survey of midwifery care in Sweden posed a question to midwives regarding the risk status of the women in the study (Sandin-Bojö & Kvist, 2008) but the survey did not ask about the use of risk assessment at individual units and it remains uncertain to what extent this practice is routinely used in Sweden. At the hospital where this study took place, it was not routine to carry out risk assessment either on the woman's arrival at the maternity unit or during the birth process. According to a statement from The Society of

Obstetricians and Gynaecologists of Canada, it is important that women at low risk are informed and encouraged about natural childbirth (The Society of Obstetricians & Gynaecologists of Canada, 2008). Unless the midwife makes herself aware of the woman's risk status this encouragement might easily be omitted. Identification of women at low risk might help the midwife to reflect over the care which she offers the individual woman rather than giving high risk care to all – "just in case".

Despite debate and research, the concept of normality in labour and delivery is not standardized or universal (WHO, 1996).The statement about normal birth recently issued in Canada states that in "appropriate circumstances" evidence-based interventions to facilitate labour progress may also be used in "normal birth." These include augmentation of labour, artificial rupture of membranes and pharmacological analgesia including epidural anaesthesia. These variables were also included in WHO's guidelines but in contrast, they were presented as practices that should be used with caution and are often used inappropriately. In the present study we found, surprisingly, that an indication given for the use of oxytocin infusion was suspected pathological CTG, which is a contra-indication for the use of oxytocin (Berglund et al., 2010) .

The wide spread use of oxytocin and epidural analgesia in this study caused many low risk births to be classified as high risk during labour. A national study in Sweden (Sandin-Bojö & Kvist, 2008) showed that some midwives considered births as normal even though epidural analgesia and oxytocin infusion were used, which endorses the Canadian statement and may be an indication that intervening in the birth process is becoming more and more accepted by the professions. A doctoral thesis from Sweden (Hellmark-Lindgren, 2006) discusses how on the one hand professionals emphasize pregnancy as a healthy condition and on the other they contradict themselves by the way in which they survey pregnancy by looking for deviations. The author states that this creates tension that makes way for worries and speculation about

high risks among parents-to-be. Hellmark- Lindgren (2006) suggests that medical technology is a part of life and that its use does not need to be debated by the professions. However, we suggest that the use of interventions, which were originally adopted with the aim of improving infant outcomes, have resulted in many labours being regarded as high risk labours which may be a very costly practice for societies (Tracy & Tracy, 2006). Midwives may be spending more time in preparing for emergencies than in caring for women who, it turns out, are low risk when the birth is over.

The care given by the midwives in this study varied very little between low risk and high risk births and this finding is similar to findings in an earlier Swedish study (Sandin-Bojö et al., 2006). Only one variable showed a statistically significant difference between low risk and high risk births and this was the use of amniotomy. Amniotomy was performed in 57.6% of low risk labours and the most common indication was to speed up the process. It is unclear whether it was the midwives or the women who wished to speed the process up. It seems that the midwives were aware that the practice of amniotomy was questionable since they were restrictive in their use of amniotomy for the high risk group; it was carried out in 3.7% of high risk labours and the difference between the groups was statistically significant. A Cochrane review (Smyth et al., 2007) points to an increased risk for operative delivery when amniotomy is performed and the authors' conclusion was that amniotomy is not recommended as a routine intervention.

In this study only 27.8% of the women gave birth in a non-supine position which can be compared to 34.7% in a national Swedish study (Sandin-Bojö & Kvist, 2008). It is unclear whether this was the women's choice. It is possible that midwives encourage women to give birth in a supine position so as to have a better possibility to "guard the perineum" and a better working position, although this variable was not examined in the present study. Evidence for guarding of the perineum is at present limited. A Cochrane review concluded

that up-right positions were recommended during the second stage, especially for women without epidural anaesthesia (Gupta et al., 2004).

Oxytocin augmentation was given to almost a third of the women during the second stage of labour. According to the recommendations by WHO (1996) evidence for routine use of oxytocin in the second stage is insufficient. A recent study found that primiparous women who were given oxytocin during the second stage had more operative deliveries, longer second stage and cord pH and base excess were lower compared to women without oxytoxin augmentation (Svärdby et al., 2007). Furthermore, women given oxytocin had a more negative birth experience. It was noted in this study that few women had a labour of longer duration than 24 hours and that the second stage of labour was shorter than one hour for a great majority of the women. This could be a result of the high levels of oxytocin infusion. Some research has shown that women prefer augmentation of labour when contractions are judged to be inadequate (Blanch et al., 1998; Lavender et al., 1998). Although there has been no formal adoption in Sweden in general of the philosophy of "active management of labour" (O'Driscoll, 1993) it seems that the idea has gradually found its way into midwifery practice.

Discussion of the method

Retrospective examination of midwifery and medical records imposes a limitation on the interpretation of the results since documented care may not be identical to care performed (Donabedian, 1998; Griffiths & Hutchings, 1999; Ehrenberg & Ehnfors, 2001). It is not certain that poor documentation is analogous to poor care (Griffiths & Hutchings, 1999). The study took place at only one unit and the findings cannot be generalised to all other units in Sweden or in other countries. However, in this study documentation was scrutinized using a validated instrument (Sandin-Bojö et al., 2004) and the results are largely similar to results from other studies carried out in Sweden (Sandin-Bojö et al., 2006; Sandin-Bojö & Kvist,

2008) and may therefore be indicative of how midwifery care is conducted in Sweden. The sample size was based on convenience rather than on a calculation of power and therefore results of the comparisons between low risk and high risk groups should be viewed with this in mind.

In this study there was no documentation in any of the records for the following variables: the woman was offered a single room, the woman had a relative/friend with her, vulval shave was carried out, the woman was offered food and drink, gloves were used during vaginal examinations, guarding of the perineum was carried out, delayed cutting of the cord until pulsation had stopped, emotional support from staff and clean cutting of the cord. Although these variables may seem extraneous to the instrument in an industrialised setting, the intention of WHO's recommendations and of the instrument constructed by Sandin-Bojö et al. (2004) was that they would be applicable on a global level and useful for observation of care also in developing countries.

Despite limitations in this method, documentation in medical records is one of the few means of investigating what is actually done and it is one of the main ways in which staff communicates with each other. This means that patient safety may be directly affected by the quality of documentation. The fact that scrutiny of the records was carried out retrospectively means that the midwives were not aware of the impending examination when they documented the care they gave. They had therefore no possibility to improve the precision of their documentation and so were not able to affect the results in a false positive direction. The question pertaining to whether the staff was present with the woman in the labour room was difficult to interpret. Labour is a long process and it may be necessary to adjust this question so that degree of presence is made visible. The WHO intended the document on which the instrument is based to be globally applicable. However, some of the questions that are

included in the instrument may be superfluous in industrialized countries. It will be necessary to further develop and refine the instrument.

Conclusions

To enable care to be individualized and provided at the correct level risk assessments are necessary. The act of carrying out a risk assessment may cause midwives to become more aware of differences in management of low risk and high risk labour and birth. The instrument developed by Sandin-Bojö et al. (2004; 2006; 2007) can be used for continuous quality assurance, for example by scrutinizing one month's documented care each year.
It is unclear today how the term "normal delivery" is understood by midwives and the authors encourage midwives to be proactive in defining their area of professional specialty, rather than leaving this work to others.

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Table 1. Background variables for the women with low risk births (n=144)

Variable		**%**	**n**
Parity	0-para	46.5	67
	Multipara	53.5	77
Civil status	Co-habiting/married	97.9	141
	Other	2.1	3
Smoking	Never	87.5	126
	1-9 cig/day	9.0	13
	>10 cig/day	3.5	5
BMI	<19	5.6	8
	19-24	48.6	70
	25-30	39.6	57
	>30	6.3	9
Nationality	Swedish	74.3	107
	Nordic	1.4	2

	Other	24.3	35
Occupation	Employed in gainful occupation	68.8	99
	Student	13.9	20
	Homemaker/ on maternity leave	9.7	14
	Unemployed	7.6	11

Table 2. Observations recommended by WHO during the first stage of labour

Documentation found in the records	**Yes** %	**No** %	**NA** [a] %	**n**
Partograph	99.3	0.7	-	-
Pulse	2.8	72.9	24.3	35
Blood pressure	54.9	20.8	24.3	35
Temperature	11.1	64.6	24.3	35
Emotional support/information about examinations and controls	4.2	95.8	-	-
Emotional support/presence of staff at the woman's side	-	-	-	-
Physical support	65.3	34.7	-	-
Non-pharmacological pain relief	36.8	63.2	-	-
Intermittent auscultation of foetal heart rate	9.7	90.3	-	-
Vaginal examination every 4th hour or less	13.9	86.1	-	-
Amniotic liquor judged	99.3	0.7	-	-

[a] Not applicable = where the first stage of labour was shorter than 4 hours

Table 3. Changes in the risk status of the low risk group during the birth process (n=144)

Risk status:	**Low risk**	**Risk**
	% (n)	**% (n)**
On admission	100 (144)	-
After the first stage of labour	55 (79)	45 (65)
After the second stage of labour	47 (68)	53 (76)
After the third stage of labour	76 (109)	24 (35)

Table 4. A comparison of low risk and risk births for the use of care interventions which hypothetically should be more common amongst high risk births

	Total sample	**Low risk**	**High Risk**		
		n = 144	**n = 54**		
	n (%)	**n (%)**	**n (%)**	**chi^2**	**P-värde**
Labour admission test [CTG]	190 (96.0)	138 (95.8)	52 (96.3)	0.022	1.000
Mothers pulse checked during the first stage	4 (2.0)	4 (7.0)	0	1.549	0.46
Mothers blood pressure checked during first stage	106 (53.5)	79 (54.9)	27 (50.0)	0.405	0.82
IV route established	96 (48.5)	68 (47.2)	28 (51.9)	0.337	0.63
Mother given epidural anaesthesia?	48 (24.2)	38 (26.4)	10 (18.5)	0.176	0.33
CTG suspected to be pathological	37 (18.7)	22 (15.3)	15 (27.8)	4.038	0.06
Amniotomy carried out during first stage	85 (42.9)	83 (57.6)	2 (3.7)	46.63	<0.01*
Oxytocin infusion used during first stage	35 (17.7)	24 (16.7)	11 (20.4)	0.370	0.54
Oxytocin infusion used during second stage	64 (32.3)	46 (31.9)	18 (33.3)	0.035	0.87

Birth completed by instrumental delivery	13 (6.6)	9 (6.3)	4 (7.4)	0.086	0.75

* statistically significant