Care in Labour:

A survey in Bukavu, the Democratic Republic of Congo

AUTHORS	Helena Yngfors Therese Andersson
PROGRAM	Barnmorskeprogrammet OM1660 HK 2008
EXTENT	15 Higher Education Credits
SUPERVISOR	Marie Berg
EXAMINER	Helena Wigert

Institutionen för Vårdvetenskap och hälsa

Sahlgrenska akademin

GÖTEBORGS UNIVERSITET

Acknowledgement

Titel (engelsk):	Care in labour: A survey in Bukavu, the Democratic Republic of Congo.
Titel (svensk):	Vård under förlossning: En undersökning om förlossningsvård i Bukavu, Demokratiska Republiken Kongo
Arbetets art:	Magister uppsats
Program/kurs/kurskod/kursbeteckning:	Barnmorskeprogrammet 90 hp/ Reproduktiv och perinatal hälsa Examensarbete II/ OM1660
Arbetes omfattning:	15 Högskolepoäng
Sidantal:	45 sidor
Författare:	Helena Yngfors Therese Andersson
Handledare:	Marie Berg, Ann-Kristin Sandin-Bojö
Examinator:	Helena Wigert

ABSTRACT

Background: The Democratic Republic of Congo [D R Congo] has among the highest maternal and infant mortality rates in the world. Though a lot of positive changes have been made in the country when it comes to women's health and maternity services, there still is a lot to be done to meet up with the WHO: s goals and to achieve an evidence based and efficient quality of care. The aim of this study is to describe how birth is managed in two maternity clinics in eastern D R Congo. The study has a focus on normal birth. Birth is profoundly a natural physiological process but this process can easily be disrupted. Medical interventions are developed for the few occasions when birth becomes pathologic and requires assistance and are not meant to interfere within the normal process.

Method: The study has a quantitative approach, and a descriptive analyze was used. The study was implemented during a time period of five weeks. Participating midwives, nurses and physicians at the maternity clinics completed a questionnaire after every delivery, concerning the management of intrapartum care. A part of the questionnaire is based on the evaluation tool called Bologna score.

Result: The management of labour at the two maternity clinics is according the Bologna Score not based on the best available evidence. All of the women gave birth in a supine position and the presence of a companion was not allowed. Episiotomies were performed in a high frequency, especially in primigravida.

Conclusion: The finding in this study indicates that some changes in routines, management and attitudes need to be done at the maternity clinics, in order to achieve a high quality in intrapartum care.

Keywords: Normal birth, Reproductive health, Management in labour, Bologna score, Intrapartum care.

SAMMANFATTNING

Bakgrund: Den Demokratiska Republiken Kongo [D R Kongo] har bland den högsta mödra- och barndödligheten i världen. Trots att en hel del förändringar har gjorts i landet för att förbättra kvinnors hälsa och mödravård, finns mycket kvar att göra för att nå upp till WHO:s mål och för att uppnå en evidensbaserad och tillräckligt hög kvalitet av vården. Syftet med denna studie är att beskriva hur förlossningsvården handläggs på två förlossningskliniker i östra D R Kongo. Studiens fokus är normalt födande. Födelse är i grunden en naturlig fysiologisk process, men denna process kan lätt störas. Medicinska interventioner är utvecklade för de få tillfällen då förlossningen blir patologiskt och kräver assistans och är inte menade att störa den normala processen.

Metod: Studien bygger på en kvantitativ metod och en deskriptiv analys har använts. Studien genomfördes under en tidsperiod av fem veckor. Deltagande barnmorskor, sjuksköterskor och läkare på de två förlossningsklinikerna fick fylla i en enkät efter varje avslutad förlossning, angående handläggandet av förlossningen. En del av enkäten baseras på ett instrument som heter Bologna Score.

Resultat: Handläggning av förlossning på de båda förlossningsklinikerna är enligt Bologna Score inte baserad på tillgänglig evidens. Alla kvinnor födde i en liggande position och sällskap under förlossningen var ej tillåtet. Episiotomier utfördes i en hög frekvens, speciellt hos förstföderskor.

Konklusion: Resultatet i denna studie indikerar på att förändringar i rutiner, handläggning och attityder behöver genomföras på förlossningsklinikerna för att uppnå en hög kvalitet på förlossningsvården.

Nyckelord: Normalt födande, Reproduktiv hälsa, Handläggning av förlossning, Bologna Score, Vård vid förlossning.

CONTENTS

Appendix 1A: Information for participants and consent form

Appendix 1B: Information for participants and consent form (french)

Appendix 2A: Instructions for filling in the questionnarie

Appendix 2B: Instructions for filling in the questionnaire (french)

Appendix 3A: The questionnaire

Appendix 3B: The questionnaire (french)

Appendix 4: Photos

INTRODUCTION

Birth is associated with many rituals and practices. These vary depending on the time in history and the culture in which the birth is occurring (1). Keeping birth normal and the striving to interfere as little as possible with the natural process can be defined as a goal for the midwife. The underpinning philosophy of a midwife led care is on normality and the natural ability of women to experience birth with minimum or without routine interventions (2).

Women die from a wide range of complications in pregnancy, childbirth or the postpartum period. A total of 99% of these maternal deaths occur in low-income countries, where 85% of the world population lives. The mean maternal mortality ratio in low-income countries is 450 maternal deaths per 100 000 live births versus 9 in high-income countries. The major reasons correspond to four factors; 25% to severe bleeding, 15 % infections, 12 % hypertensive disorders in pregnancy, and 8 % obstructed labour. The World Health Organisation's [WHO] Millennium Development Goals [MDG] number 5 aims to improve the global maternal health, by reducing maternal mortality by three quarters between 1990 and 2015, and to achieve universal coverage of skilled care at birth by 2015 (3). The presence of health care personnel that are equipped with adequate skills is of great interest when it comes to effective and sustainable mortality and morbidity reduction. Skilled care refers to the care provided to a woman and her newborn during pregnancy, childbirth and immediately after birth by an accredited and competent health care provider who has the necessary equipment with which to work, and also has the support of a functioning health. This person is called a skilled attendant and could be a midwife, nurse or a physician (4).

The idea of this study was created as we were offered to participate in a project that aimed to study how birth is managed at two maternity care clinics in eastern Democratic Republic of Congo [D R Congo]. The focus of this study is normal birth and quality in intrapartum care. Quality in intrapartum care has by convention been measured in terms of mortality and morbidity in women and their newborns but also in rates of delivery outcomes such as vaginal spontaneous birth, vaginal instrumental birth, caesarean section, and low Apgar score (5). But we believe and the evidence

tells us that a high quality intrapartum care includes more factors concerning care during the whole process of labour and delivery, including both medical and psychosocial care. Thus an evaluation tool to measure and evaluate quality in intrapartum care should include all these dimensions. This study will be implemented with the help of Bologna Score an evaluation tool that aims to take the whole concept of normal labour in consideration (6).

BACKGROUND

The theoretical concepts in this study are normal birth and reproductive health. A good reproductive health is strongly correlated with the quality of care during childbearing, labour and the postpartum period (5). These two concepts have a wide range of definitions and there is a need to clarify their core, this is done below. Care practices around the world that promote normal birth are also presented in this background as well as main issues in normal childbirth and some facts about the situation in D R Congo.

Reproductive health

According to WHO health signifies a state of complete physical, mental and social wellbeing and not just absence of disease, within this framework reproductive health is included. Reproductive health is related to processes, functions and system at all stages in life. It implies that people are able to have a responsibly and satisfying safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Reproductive health include the right of access to appropriate health care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy child (7). Motherhood is often a positive and fulfilling experience, but is for too many women associated with suffering, ill-health and even death especially for women in low-income countries (8).

Basis for reproductive health care is high quality antenatal-, prenatal-, postpartum- and newborn care and provision of high-quality services for family planning which includes infertility services, elimination of unsafe abortions, prevention and

treatment of sexually transmitted infections, reproductive tract infections, cervical cancer and other gynaecological morbidities and promotion of healthy sexuality. Other component which effects people's reproductive health is society and social context. Standard of living, level of education, general health situation, job opportunities for women and men, matrimonial legislation, childbearing restrictions, birth control and also availability and efficiency of healthcare systems are all factors that can affect reproductive health (9, 10). Evidence based care and an ambition of keeping birth normal through a holistic perspective is fundamental to enhance the reproductive health of women and the health of their newborns and their families (4).

Normal birth

The word normal is associated with a sense of being usual or most common (1, 11). Other explanations of the word normal, according to a health perspective, is that a person being both psychologically and physically healthy and conforming to a type or a standard. The word normal is in many contexts often interchangeable with the word natural (11).

The concept of childbirth

Two different perspectives of childbearing exist today. One is biomedical, which has its origin from the enlightenment approach, where the human body was seen as a machine and birth is treated as an illness (12, 13). This approach can be described as linear way of looking at childbirth where strict rules and guidelines control the management of labour and there is no shade of gray, either its black or white. In the opposite perspective childbearing is seen as a natural biological and social-psychological process compromising an experimental dimension (12). This approach has its origin from the observations that the natural system of the world are not simple and predictable, but complex and chaotic and that events are profoundly interconnected. In this perspective, childbirth is a complex dynamic process that does not follow a certain linearly path. This perspective promotes a circular way of thinking, which includes reflection, interpretation, developing of hypothesis and formation of ideas that can change during the progress. Today's care has an ambition to implement this circular approach in the care of the women in labour. The concept

normality has flexible boundaries and needs to be put in the context of the complexity in labour to be interpreted (13).

The concept childbirth can vary over time and between different cultures, in some places in the world it is more common with hospital deliveries and in some other countries deliveries at home are occurring more frequent. The consensus normality in the sense of most common can consider something people choose to accept or something people like to change (14).

Definition of normal birth according to the WHO

The definition of a normal birth according to the WHO is that the labour has a spontaneous onset after 37 and less than 42 weeks of pregnancy with a singleton fetus, that there is low-risk at the start of labour and remains so throughout labour and delivery, and that the infant is born spontaneously in the vertex position and that mother and infant are in good condition after birth. The WHO states that the goal of intrapartum care in normal birth is to achieve a healthy mother and child using the least possible number of interventions compatible with safety. This approach implies that in normal birth there should be a valid reason to interfere with the natural process. The task of the caregiver is to support the woman, her partner and family during labour, at the moment of childbirth and in the period thereafter. It is also to make observation of the labouring woman, monitor the fetal and newborn condition, assess risk factors, early detect complications, and to perform minor interventions if necessary (15).

Definition of normal birth according to the UK Royal College of Midwives

The UK Royal College of Midwives has created some components of normal birth. These are: birth is a unique and dynamic process, fetal and maternal physiologies interact symbiotically, birth occurs within 24 hours of commencement of labour, minimum trauma occurs to either mother or baby, spontaneous onset is between 37 and 42 weeks and that birth follows an uncomplicated pregnancy. To describe the concept normal birth more thoroughly they say that in normal birth, labour is considered as a continuum, mobility should be encourage, food and fluids should be permitted and that there is a spontaneous physiological rupture of membranes. In

normal birth there will be alternative methods for pain relief and a judicious use of episiotomy. A calm, gentle and non-threatening environment is an important component in the concept normal birth (1).

Research about normal birth

There is very little research and reflection on the complexity of the normal birth process. To define normal birth in other terms than the absence of technical interventions is a difficult task. Labour, purely in the physical sense, may be described as the process by which the fetus, placenta and membranes are expelled through the birth canal. But labour is much more than a purely physical event. What happens during labour can affect the relationship between mother and baby and can influence future pregnancies. Many official definitions of labour and birth appear to be purely psychological and do not encompass the psychological well-being of the parents (16).

In a concept analysis of normal birth, Gould (11) constructed a synthesis of the key aspects of normal birth based on observations of labouring women. The synthesis included four defining attributes of labour. The first one is that *physiologically normal labour naturally follows a sequential pattern*. The physiology of labour reinforces the necessity of a sequential pattern to labour; minor interventions can disturb this process. The second attribute represent the usual criterion for low-risk labour and birth which includes *experience of painful regular uterine contractions stimulating progressive effacement and dilatation of the cervix and descent of the fetus, culminating in the spontaneous vaginal birth of a healthy baby and expulsion of the placenta and membranes with no apparent complications in mother and child*. The third attribute is that normal labour *is a strenuous work*. The word labour is strongly associated with hard and often painful work and work is perceived through productive effort. The fourth attribute is that *movement has a crucial role* in normal labour. These attributes form a deeper understanding of the natural processes in normal birth, but the attributes are still focused on physical processes. In contrast, women writing about their experiences of labour often focus on the acute psychological transition, which take place (11). This psychological transition that occurs in the labouring women is called "a rite of passage". It is a series of rituals

designed to transport an individual from one social state, in this case a non-mother to another in this case a mother (17).

Risk assessments according to the WHO

In defining normal birth two factors must be taken into consideration: the risk status of the pregnancy, and the course of labour and delivery. The value of risk scoring is far from being a completely reliable method in predicting the outcome of pregnancy and delivery. A pregnant woman who is at low risk when labour starts may eventually have a complicated delivery. On the other hand, many high-risk pregnant women end up having an uncomplicated course of labour and delivery (15).

There are two groups of antenatal risk factors during pregnancy, those associated with the women's medical, obstetrical and social history or circumstances and those arising during the antenatal period (18).The assessment of risk factors starts during antenatal care. This can be attained in a relatively simple way by determining maternal age, height and parity, asking for complications in obstetric history such as previous stillbirth or caesarean section, and searching for abnormalities in the present pregnancy, such as pre-eclampsia, multiple pregnancy, ante partum haemorrhage, abnormalities or severe anaemia. Defining obstetric risk by demographic factors such as parity and maternal height has a low specificity and therefore results in many uncomplicated deliveries being judged as high risk. The specificity of complications in the obstetric history or in the present pregnancy is much higher. However, even high quality antenatal care and risk assessment cannot be a substitute for adequate supervision of mother and fetus during labour (15). The midwife's major area of responsibility lies within the care of low risk pregnant women and when complications occur, an obstetrician is contacted (15, 18).

Risk assessments in western Africa

No studies about risk assessments neither in D R Congo nor in central Africa was found. However a study in Niger, western Africa presents risk factors during antenatal consultations in two urban areas. The risk factors reported by the health personnel were: age <16 or age >35 years, multiparty (>5), previous caesarean section, previous stillbirth, > 2 miscarriages, history of cardiac disease, history of

diabetes, woman's length <150 cm, abnormal pelvic skeleton, hypertension (diastolic blood pressure >90 mmHg), oedema and/or proteinuria, sugar in urine, vaginal bleeding, weight gain >10 kg, and abnormal fetal position (>37 weeks). The detection of high risk pregnancies through antenatal consultations and during labour is according to evidence advocated as a good tool to reduce maternal mortality in developing countries (19).

Risk assessments in Sweden

The management of normal labour in Sweden has its major guidance from the "State of the Art" a preparation of evidence about normal birth published by the Socialstyrelsen, a central administration authority in Sweden. The definition of normal birth and the management of normal birth are strongly influenced by the WHO. The main goals in childbirth according to the "State of the Art" are to achieve a healthy mother and child and to create a positive experience of labour, with least possible interference of the normal process of labour (14). In Sweden a risk assessment is done during pregnancy and labour. On admission of labour, a woman at low risk is defined as having one fetus in cephalic presentation with a gestation age of 37+0 to 41+6 weeks, normal fetal heart rate (110–150 beat/min), spontaneous labour, clear amniotic fluid, diastolic blood pressure < 90mmHg, no previous obstetric complications (caesarean section, perinatal death, haemorrhage >1000ml, rupture of the sphincter or other extensive perineal lacerations) and no medical disease demanding special medical care (i.e. women suitable for midwifery-led care). Before the mother and baby leave the labour ward, the midwife assesses the well-being of both and, if there are complications, an obstetrician, pediatrician, or both, are contacted to make a decision on the postpartum care. All other pregnancies were labelled high risk. A woman was considered to be in active labour if she fulfilled two of the following three criteria: regular painful contractions, spontaneous rupture of the membranes, cervix dilated 3 cm or more (20). Risk assessment is a continuous procedure during pregnancy and labour and not a once-only measure. Whenever complications become apparent an evaluation needs to be done which may induce the decision to refer the woman to a higher level of care (15).

Management of normal birth

Birth is profoundly a natural physiological process but nature's carefully devised plan for labour and birth can easily be disrupted. Because of this, it's important to understand and elaborate care practices in how to promote normal birth. Medical interventions are developed for the few occasions when birth becomes pathologic and requires assistance and are not meant to interfere within the normal process (21, 22).

Care practices that promote normal birth

The World Health Organization has identified four care practices that promote, protect and support normal birth and Lamaze International, a nonprofit organization that promotes a natural, healthy and safe approach to pregnancy, childbirth and early parenting have identified two more. The first five care practices promote the normal physiological process: allowing labour to start on its own, freedom of movement during labour, continuous labour support, spontaneous pushing in non supine positions and no separation of mother and baby. The sixth care practice, no routine intervention, avoids unnecessary disruption of the normal physiological process (21).

The Coalition for Improving Maternity Services [CIMS] is a coalition of individuals and national organizations within the United States of America [USA] with concern for the care and well-being of mothers, babies, and families. This coalition has composed ten evidence-based steps that promote a wellness model of maternity care to improve birth outcomes. According to these steps the woman in labour should have unrestricted access to birth companions, labour support and professional midwifery care. The woman will be insured accurate, descriptive and statistical information about the practices and procedures for birth care at their place of birth, including measures of interventions and outcomes. This information provides a base for making informed decisions. The woman shall receive care that is sensitive and responsive to the specific beliefs, values, and customs of the mother's ethnicity and religion. The birthing woman shall be provided with the freedom to walk, move and assume the positions of her choice during labour and birth (unless restriction is specifically required to correct a complication) and discourages the use of a non supine position. The hospital, birth centre or home birth service shall insure that they

have clearly defined policies and procedures for collaborating and consulting with other maternity services and for linking the mother and baby to appropriate community services during both the prenatal and the postpartum periods and that practices and procedures, supported by scientific evidence are routinely employed. The last four steps is about educating staff in nondrug methods of pain relief and does not promote use of unrequited analgesic or anesthetic drugs, encouraging all mothers and families to touch, hold, breastfeed, and care for their babies, discourages nonreligious circumcision of the newborn and the last step strives to achieve the WHO/ United Nations Children's Fund [UNICEF] Ten Steps of the Baby-Friendly Hospital Initiative to promote successful breastfeeding (22).

Main issues in normal childbirth

The evidence around the management of normal labour today is presented in the following text. This summary of evidence-based care is based up on the questionnaire used in this study. The evidence presented about management of normal labour was found in the databases; PubMed and Cinahl. The keywords were: normal birth, normal childbirth, normal delivery, vaginal birth, vaginal delivey, management, quality, intrapartum care, birth position, episotomy, perineal trauma, support, skin-to-skin, postpartum bleeding, postpartum haemorrhage, pain, partograph, Apgar score, Apgar score <7 and neonatal outcome. We have also searched for articles manually. The time period used for searching articles was February to December 2009. The limits used during the search for articles were: Swedish or English, published in year 2000-2009 and reviewed articles.

Support during labour

An evidence based care insures the woman access to a wide variety of support in labour and during the pregnancy and postpartum periods. All women should be offered unrestricted access to birth companions of their choice, including family and friends, fathers, partner and unrestricted access to continuous emotional and physical support from a skilled woman (23). Women who have access to continuous, one-to-one support during labour are less likely to have regional analgesia/anesthesia, have an instrumental vaginal birth, have an caesarean birth, report dissatisfaction with or

negative rating of the childbirth experience and they are more likely to have a spontaneous vaginal birth. Continuous one-to-one support includes emotional support (continuous presence, reassurance and praise), information about labour progress and advice regarding coping techniques, comfort measures (comforting touch, massage, warm baths/showers, promoting adequate fluid intake and output) and advocacy (helping the woman articulate her wishes to other). Continuous support is also associated with slightly shorter labour length. The effects of continuous support seem to vary by the type of provider. Support provided by non-staff members are generally more effective than support by institutional staff. Continuous labour support that begins earlier in labour appears to be more effective than support that begins later in labour (24).

Positions in labour

Movement during labour has a positive effect on the progression of labour. Upright positions and walking are associated with a reduction in the length of the first stage of labour which is an important outcome as every contraction is potentially painful. Labour are usually divided in to three parts; first-, second- and third stage. The first stage consists of the latent- and active phase. The active phase starts when the cervix is dilated 3-4 cm and continues until the cervix is fully dilated. The second stage of labour is defined as the time period from when the cervix is fully dilated to the baby is born. The third stage of labour starts when the baby is born and continues until the placenta and membranes have been expelled (17).

Women in upright positions during first stage of labour may be less likely to have epidural analgesia (25). Fewer episiotomies are performed when women gives birth in an upright position. Fewer women in upright or lateral position have reported experiencing severe pain at birth. Evidence also shows that there are fewer assisted deliveries in the upright position. Thus a blood loss greater than 500 ml based on estimation of blood loss are more common in women allocated to the upright or lateral position (26). There is evidence that women adopting upright positions in the first and second stage of labour tend to have shorter labours, experience less pain and have more satisfaction with the birth experience. Restriction of movements can compromise normal labour (11). A study has showed that giving birth in a non supine position caused a higher rate of perineal trauma than other birth positions i.e.

all fours position. Women should be given their choice to give birth in that position they want and find most comfortable. The midwife has a responsibility to inform the women about the risk of getting a perineal trauma in the position the women chose to give birth in (27).

Pain relief

In contrast to medication, there is minimal to no risk of adverse side effects from nondrug methods of pain relief. Nondrug methods like massage and hydrotherapy have been shown to provide significant benefits. Massage and encouraging touch have shown to reduced maternal pain, stress and anxiety and helped the women to cope with their pain and made them feel more comforted and reassured. Massage and encouraging touch have also appeared to reduce the need for analgesia/anaesthetics and reduced the need of augmentation in women with slow labours and fewer fetal malpresentations such as occiput posterior and deep occiput transverse positions. Women using epidurals with opioids in labour are more likely to have a longer second stage, have increased likelihood of oxytocin use, and have increased likelihood of instrumental delivery or caesarean section for fetal distress (28).

The Partograph

The role of the partograph in the first stage of labour was established more than 20 years ago, and its practical value as a graphic display of progress, a concise method of conveying information, and a method of recognizing and predicting abnormality through comparison with an ideal profile over time is clearly recognized. Experience in the use of the partograph showed that it clarified the recording and identification of abnormalities by comparison with an ideal profile of progress. A second stage partograph is a logical extension of the first stage partograph and furthers its advantages (29). The use of a second stage partograph has been validated as a help to predict duration of labour and the mode of delivery (30).

Perineal trauma/Episiotomy

Randomised trials have shown that episiotomy is not effective in reducing the rate of severe perineal trauma (third- and fourth-degree lacerations) and may indeed be

harmful. Communication with the woman was seen as the most important way of minimising perineal trauma. A spontaneous onset of labour has a lower rate of severe perineal trauma than augmentation and induction. Mode of delivery shows that instrumental birth has much higher rates of perineal trauma than spontaneous birth (31). There is a clear evidence to recommend a restrictive use of episiotomy compared with the routine use of episiotomy. A summary review show's that compared with routine episiotomy, restrictive use of episiotomy resulted in less severe perineal trauma, less suturing and fewer healing complications. There is no difference for the experience of pain and severe vaginal or perineal trauma for routine episiotomy versus restrictive episiotomy. With restrictive use of episiotomy there is an increased risk for anterior perineal trauma. Still there is evidence that shows that there is beneficial to use a restrictive policy of episiotomy (32).

Postpartum haemorrhage

Severe bleeding is the single most important cause of maternal death worldwide. More than half of all maternal deaths occur within 24 hours of delivery, mostly from excessive bleeding. According to the International Confederation of Midwives [ICM] and the International Federation of Gynecology and Obstetrics [FIGO] active management of the third stage of labour is proven to decrease the incidence of postpartum haemorrhage, the quantity of blood loss and the use of blood transfusion. Active management of the third stage of labour consist of interventions designed to facilitate the delivery of the placenta by increasing uterine contractions and to prevent postpartum haemorrhage (33). A study to find out the use of active management of the third stage of labour in seven developing countries (Benin, Ethiopia, United republic of Tanzania, Indonesia, El Salvador, Honduras and Nicaragua) has showed that prophylactic use of uterotonic drug, mainly oxytocin, are used frequently. Furthermore the study shows that use of fundal massage directly after delivery of the placenta and follow up palpation of the uterus is seldom used in several of the examined countries. The results of the study suggest that there is an insufficient supervision of women during the hours when most maternal deaths occurs (34).

Apgar score

Apgar score has been used all over the world since year 1953. It is a scoring system used for estimating the condition and prognosis of the newborn baby, in conjunction with the delivery. The heart rate, respiratory effort, muscle tone, reflex irritability and color in the newborn baby are judged and the baby is given points, from zero up to two, for the different parts. The total score is 10 points and a score of seven or more indicates that the baby is well. The Apgar score is judged and determined after one minute, five minutes and 10 minutes after the delivery. The total score after five minutes is regarded as the predictor of survival of the newborn baby. An Apgar score of zero to three points, five minutes after the delivery is a significant indicator and predictor in neonatal death in both preterm and term babies (35). A recently study that has been made, showed that an Apgar score of less than seven is associated with a consistent risk of afflicting neurological dysfunction and with low congenial function in adulthood (36). It has been showed that Apgar score still after more than 50 years is a useful instrument for judging the neonatal outcome (35).

Skin to skin care

Skin-to-skin contact implicate that the newborn baby is being placed naked onto the mothers bare breast directly after the delivery with a warm blanket put over her/him. Newborn babies should not be separated from their mother or tentatively parents after the delivery (37, 38). They should be placed skin-to-skin as soon as possible after birth. An effect that skin-to-skin care have is that the warm, touch and odour from the baby makes the mother release the hormone, oxytocin. Oxytocin makes, among other things, the skin temperature of the mother to rise, which creates warmth to the newborn baby. Another benefit with skin-to-skin contact is that it helps the baby compensate "the stress of being born". Parents to a newborn child should be informed about the importance of early skin-to-skin contact. They should also be informed about that the first two hour after birth seems to be a sensitive time where nature itself creates an opportunity for mother and infant to develop affection for each other (38). In a literature review it has been concluded that early skin-to-skin contact may have positive effects in the first time breastfeeding, breastfeeding three days postpartum, in long-term breastfeeding, the babies' p-glucose, infant crying and cardio-respiratory stability (39).

D R Congo

The Democratic Republic of Congo is located in Central Africa, with the bordering nations Angola, Burundi, Central African Republic, Republic of the Congo, Sudan, Rwanda, Tanzania, Uganda and Zambia. The country has an estimated population of 66 million inhabitants. The official language in the D R Congo is French. The most common languages in South-Kivu, eastern part of D R Congo are Swahili and French (40).

The D R Congo has among the highest maternal and infant mortality rates in the world. The maternal mortality rate is 1289 per 100 000 live births and the infant mortality rate is 213 per 1000 born children. In year 2005, 83% of all births in the D R Congo were attended by skilled health personnel. There was a difference in rural and urban areas, with 74, 2 % births attended by skilled health personnel in rural areas and 96, 7 % in urban areas. Caesarean section was in 2005 performed in 3.0% of all births in the D R Congo (41). War and ethnic conflict have caused enormous suffering for the people in the D R Congo since 1993. Thousands of people have been killed and properties have been looted and destroyed and health clinics and hospitals have been damaged. Most parts of the D R Congo have also severely reduced access to medical services due to poor infrastructure. Pregnant women and children are particularly vulnerable to insufficient health care. According to the latest International Rescue Committee report, 5.4 million Congolese have died between August 1998 and April 2007. Of these 47% are children under the age of five (40).

A lot of improvements have been done in the country by nongovernmental organisations with the help from different international organisations, but war and conflicts are making the progress slow. The Communaute des Eglises de Pentecote en Afrique Centrale [CEPAC] is among the largest democratically governed church network in the D R Congo and is a distinguished health contributor operating 150 health centres, three hospitals, a medical faculty and several nurse schools. They are also a major provider of education in Eastern Congo and own and operate 455 primary schools, 166 secondary schools and one university, Université Evangelique en Afrique, [UEA]. They have done a lot of work to improve the quality training of health personnel in the country. A main collaborator is the Pingstmissionens utvecklingsarbete, [PMU Interlife] which through its collaboration with Styrelsen för

internationellt utvecklingsarbete, [SIDA] in Sweden, has contributed to a lot of developing projects and also humanitarian projects over the years (42). Though a lot of positive changes have been made in the D R Congo when it comes to women's health and maternity services, there still is a lot to be done to meet up with the WHO's goals and to achieve an evidence-based and efficient quality of care. This also includes maternity care in childbirth.

In health care centres and hospitals in D R Congo, the majority of personnel are skilled health care providers with a professional training. The level of education for the physician's consists of a seven year university degree. The education for nurses is either A1, A2 or A3, where A2 consist of four year secondary school. The A2 education for nurses includes practice in childbirth and a small part of specialisation in obstetrics. The midwifery education could either be a three year university degree (A1) or two year secondary school (A3) which both is direct entrances (Verbal information, 17/12 -09, Marie Berg).

There is very little written about intrapartum care in D R Congo and this reflects the need of further research in this area.

OBJECTIVES

The overall objective of this study is to describe how birth is managed in two chosen maternity care units in eastern part of the D R Congo.

METHOD

A prospective cross-sectional study, with a quantitative approach, was conducted at two maternity clinics in Bukavu, D R Congo during the autumn 2009. The population of the study compromised every woman that came to the two maternity clinics and gave birth during the time period of the study.

The Questionnaire

In order to achieve the objective of the study, a questionnaire has been used for collecting data of the management of normal labour. It is developed by Sandin-Bojö and Kvist (5) to assess both attitudes and practices within maternity services and including characteristics of management of normal birth. The questionnaire consists of three parts: background variables, the Bologna Score instrument and study specific items which were added to assess if the care is managed according to WHO:s definition of a normal birth (5). The questionnaires purpose is to indicate to observers how many births start as normal and how vaginal birth is managed in a given population (6). The questionnaire has until now only been used in a Swedish national survey. The result from this study shows that the intrapartum care of labouring women in Sweden rather was based on attitudes than evidenced based care. Furthermore they found that the questionnaire was easy to use and gave a good picture of how the care was given at the participating maternity units. The conclusion of the study was that the questionnaire was useful as a quality indicator for intrapartum care and could be a helpful instrument for improvements in intrapartum care (5). The three parts of the questionnaire is described below.

The background variables

Background variables consist of eight questions and these are: the woman's age, gestational week, parity, nicotine habits, body mass index [BMI] in early pregnancy, civil status, whether the woman were in active labour on arrival at the maternity clinic and if the pregnant woman were judged as low risk or not on the arrival at the maternity clinic.

The Bologna score instrument

Chalmers and Porter (6) have constructed an instrument from the WHO: s recommendation that is known as the Bologna Score. It is based on the premises that normal birth should be demedicalized, based on the use of appropriate technology, should be evidence based, and should involve women in decision making. This instrument consists of three indicators: A, B and C. Indicator A describes how labour was started and aims to identify the number of women falling outside the scope of

the definition of normal labour and is measured by the percentage of women with induced labour or undergoing elective caesarean section. Indicator B is a measurement for compliance with the requirements for a safe delivery and is measured as the percentage of women attended by a skilled attendant during labour. Indicator C is the Bologna Score and consists of five questions, which are posed for every delivery not falling within indicator A, that is every woman with a spontaneous start of labour:

- Whether a companion to the woman was present at birth.
- Whether a partograph was used.
- Absence of augmentation, including external physical pressure on the fundus or emergency caesarean section.
- Whether the woman gave birth in a non supine position.
- Whether skin-to-skin contact between mother and baby was maintained for at least 30 minutes during the first hour after birth (6).

The first question in Bologna score, whether a companion to the woman was present at birth, refers to assess the accommodation of evidence-based care, the attitudes of caregiver and the woman's participating in the care. The second question, whether a partograph was used, refers to effective monitoring of labour and shows that caregivers recognize the importance of following labour progress. Question three, absence of augmentation, indicates persisting normal labour progress as judged by the professionals. Question four, whether the woman gave birth in a non supine position (which excludes most instrumental births), reflects the presence of evidence-based practice and the attitude of caregivers and question five, whether skin-to-skin contact between mother and baby was maintained for at least 30 minutes during the first hour after birth, shows the presence of evidence-based practice and indicates the attitudes of caregivers (6).

Each delivery is evaluated and one point given for each of the Bologna Score questions for which an affirmative answer is given. The maximum score for each delivery is five and the minimum is nil. A score of five suggest that the birth has been managed according to the best available evidence for care in normal birth (6).

Study specific items:

The study items included; Apgar score at five minutes, use of epidural anaesthesia (yes/no), do you judge this delivery as normal? (yes/no).

The question about epidural anaesthesia was excluded from the questionnaire in this study, this because epidural anaesthesia only was used in caesarean sections at the two maternity clinics. Four additional questions were also constructed in consultation with Ann-Kristin Sandin-Bojö and our supervisor Marie Berg: whether an episiotomy was performed (yes/no), if the mother was well after birth (yes/no), if the baby was well after birth (yes/no), was there a postpartum bleeding exceeding 500ml (yes/no). These questions were constructed with consideration of the WHO goals to achieve a healthy mother and child and were together with the two specific items above called additional questions (15).

Settings

Chahi "centre hospitalière"

The Chahi centre hospitalière is a large health centre managed by the 8th CEPAC in the area of Ibanda in Bukavu, which serves the populations of Chahi, Chidasa and other surroundings. The Chahi "centre hospitalière" started in 1978 as a dispensary, due to the inhabitants' request. By that time there was no other hospital in the area. Most of the women gave birth to their children at home. By the help of a Swedish missionary and midwife Elisabeth Claesson and the church of Chahi, a small health centre was built in 1983-1984. In 1984 the first child was born at the health centre. Elisabeth Claesson was in charge of the health centre in 1984-1989. Since 1989 Florent Mbele, MPH Health Public Manager has been in charge of the administration. In 1994 the health centre became a Hospital Centre. The Chahi "centre hospitaliére" have during the years been sponsored by different organizations, both locally and from international organizations.

The hospital has a great maternity ward with approximately 2000 deliveries per year and possibilities to perform caesarean sections at an operation room. Chahi has got 80 beds, but the number of patients is often twice as much and the consequence of

this is that the patients have to chare a bed with another patient. The hospital has a department of general medicine and a maternity clinic. Doctor Selemani Josué is the medicine director of Chahi"centre hospitaliére".

The maternity clinic offers maternal health care services three times per week, family planning two days per week and childcare services one day per week. The clinic has three beds for the labouring women. There are four midwives or nurses working during the day, from 7.30am until 4 pm and one during the night, from 4 pm until 8 am. In the maternity clinic, there are totally four midwives, two nurses and four physicians employed. The working experience for midwives and nurses varied from six years to 25 years with a mean of 15.9 years. In table 1, the level of education of the midwives and nurses are showed.

At Chahi there are limited resources of equipment. They have no forceps and no vacuum extractor. They had a vacuum extractor before, but it is now broken and they haven't got a new one. Today there is no available ultrasound at Chahi; they use fetusscope when they listen to the baby's heartbeat. If the midwife can't hear the heartbeat of the baby or if the condition differs from the normal, the physicians /midwife will send the woman to Panzi Hospital.

In year 2008 there were 2239 births at Chahi, 1699 were spontaneous vaginal births, and 308 caesarean section. Episiotomies were performed at 110 deliveries and 36 babies were stillborn. A spontaneous delivery costs around 10 US $ for the labouring women and a caesarean costs about 60-70 US $. (Personal communication with Florent Mbele, 09.11.14, D R Congo)

Table 1. The Education Level of the Midwives and Nurses at Chahi Centre Hospitalèré and Panzi General Hospital.

Level of education	Chahi centre hospitalièré	Panzi general hospital
Midwife A1	1	1
Midwife A3	3	3
Nurse A1	0	1
Nurse A2	0	4
Nurse A3	2	0

Panzi General Hospital

One of the hospitals that the 8th CEPAC runs is the Panzi general hospital in Bukavu, the provincial capital in South-Kivu, eastern part of the D R Congo. The Panzi general hospital aims to improve the quality of medical care for the population and to reduce the maternal and infant death rate. It also serves as a referral centre for other health centres. The maternity clinic manages about 2400 deliveries a year. The hospital was built by financial support from SIDA through PMU Interlife, and from Swedish läkarmissionen and still get annual financial support from these Swedish organisations (43).

The hospital was inaugurated 2002 but has since start of its construction, 1998, helped the civil society including thousands of women and girls in the D R Congo who suffer from vaginal destruction caused by brutal rapes or unassisted complicated labour. For this activity the hospital has a fistula clinic; outreach team also operates to help women in South-Kivu province, and training for health care professionals in both preventive and curative care has been given. Doctor Denis Mukwege is the chief of the hospital, specialist in obstetrics and also chief of the CEPAC health care department. He has to the rest of the world enlightened about the exposed women in the east part of the D R Congo and has got several awards for his work; as the FN award for human rights 2008, and the Olof Palme price 2008 (43).

The maternity clinic at Panzi has got three delivery rooms and one delivery room in the private clinic. Four midwives or nurses are working during the day, from 8 am until 4 pm and two during the night, from 4 pm until 8 am. There are two physicians working during the day and two during the night. The staff at the maternity clinic are composed of four midwifes, five nurses and five physicians. The working experience for midwives and nurses varied from six months to 30 years with a mean of 15.3 years. The midwives and nurses level of education are presented in table 1.

The Panzi hospital is equipped with one vacuum extractor and one forceps but these are rarely used. They also got an ultrasound and two cardiotocographs, one at the maternity clinic and one at the private clinic. The cardiotocograph is used in cases when the hearth beat of the baby is absent or abnormal. Sometimes they don't have any paper to run the cardiotocograph and they cannot use it.

In year 2008 there were 2265 deliveries at Panzi hospital, 1727 were spontaneous vaginal deliveries, 504 caesareans section and one delivery was performed with ventouse. Episotomies were performed at 371 deliveries and 93 babies were stillborn. A spontaneous delivery cost 15-16 US $ for the woman and a caesarean cost 85-100 US $. (Personal communication with midwives and nurses at the maternity clinic at Panzi. 09.10.23 D R Congo)

Data collection

Procedure

The questionnaire was translated into French and was handed out to our contact persons, Nangunia Mwanza and Nzigire Esperence in D R Congo before our arrival. We started to introduce the study at Panzi Hospital on the 2nd of October. The participants was given both written and verbally information about the study with the help of our contact persons. A consent form together with the questionnaire and written directives for how to fill in the questionnaire correctly was also handed out to the participants. The written information and the consent form are added in the appendix 1A - 2B. Distinct and clear instructions about the implementation of the study are an important element for the investigator to increase the reliability (44). After the introducing at Panzi General Hospital we went to Chahi centré hospitalièré and did the same procedure there. The total number of participants from both Chahi and Panzi were 19. The questionnaire was answered by the skilled attendant responsible for the delivery as soon as possible after the delivery was completed. Data was collected mainly by midwives but also some nurses and physicians.

Pilotstudy

Before the study begun, the questionnaire was tested to evaluate the comprehension of the questions and to detect any possible problems (45). This was done the 5th of October to 7th of October at both Chahi and Panzi. We followed the process by being present in the maternity clinics and answered questions when needed. This study included 39 deliveries, 20 at Chahi and 19 at Panzi.

During this time some questions and problems with the questionnaire was discovered. We also found that there was a need to clarify some concepts in the questionnaire for the participants. The first concept was about the postpartum period and we needed to clarify the time period of this concept. We discussed this with the participating nurses, midwives and physicians and agreed that the postpartum period in the questionnaire should be defined according to their definition of four hours after the delivery of the child. Another concept that was discussed was accompany during labour and delivery and how this concept should be defined. At both Chahi and Panzi they defined accompany during labour and delivery as a person that followed the woman to the maternity clinic and stayed outside. The accompany, which was usually a woman, was not allowed to participate in labour and delivery. The major task for this person was to bring tea and food to the woman in labour. According to Chalmers and Porter (6) the concept accompany is defined as a person who is presence during labour and delivery, this definition was used in the study. We made a decision for some changes and addition in the questionnaire. A new questionnaire was established see appendix 3A and 3B. The participants at both Chahi and Panzi were informed about the changes in the revised questionnaire before the main study started.

Main study

The main study was performed the 8th of October to the 17th of November 2009. Each questionnaire was identified with either "Chahi" or "Panzi" and coded with a number. During the data collection phase we were present at the maternity clinics to answer any questions. There was a possibility to go back to the physicians, midwives and nurses and gather data that was missing. We registered all of the deliveries during the time period of the study in a logbook. At the end of the data collection, we had a meeting at Chahi and Panzi respectively in order to discuss the study and their management of labour.

Dataanalys

For processing and analyzing of the quantitative collected data the statistical programme Statistical Package for Social Sciences [SPSS] version 17, 0 has been

used. The different alternatives of answers in the questionnaires were coded with a number and were put in the database. A descriptive analysis was carried out with the aim of comparing and investigating differences. The scales used in the analysis were nominal scale, ordinal scale and quote scale.

Before analyzing the data, the cases were the mother gave birth to twins (n = 3), twin number two was excluded, this was due to that data about twin number two was in some cases missing.

Etichal considerations

The requirements concerning scientific ethics stem from the ethical principles expressed in the UN's Declaration of Human Rights and in the Helsinki Declaration. The principles provide main guidelines for good ethical standards in research that involves humans. Nursing research is guided by the following ethical principles: The principle of autonomy, the principle of beneficence (doing well), the principle of non-maleficence (not causing harm) and the principle of justice (46).

The participation in the study was voluntary and the questionnaires were answered confidentially. It is possible for the participations to withdraw their participation at any time during the study. As research that comprises people shall be based on the participants' informed consent, the participants in the study have signed a consent form, this according to the principle of autonomy. Regardless the result of the study, the implementation of the study will hopefully generate reflections within the participants and their management. This could contribute to some benefit in the care of the labouring women and also bring the participations as a group to another level of knowledge (46).

A negative consequence with the implementation of our study could perhaps be that the participants would feel that their work is criticised. We will try to avoid this consequence by having a humble approach and an open mind that will allow us to learn from each other. Our study compromises all the women that come to the maternity clinic and have a spontaneous onset of labour. The goal of research must be to build up knowledge of the potential for helping all patient groups, including the weak (46).

The Swedish law in ethical trial of research regarding people, (SFS 2003:460) which was modified in June 2008 doesn't't involve studies that are done in the field of college education in elementary or advanced level (47). This means that we are not obligated to apply for ethical approval for this study here in Sweden. Instead the plan will be assessed locally at the Institute of Health and care sciences and University of Gothenburg. We have also got approval to perform the study from CEPAC and the medical faculty of the UEA. Approval for the study was also obtained from the heads of the participating hospitals department.

Benefits and risks with the study

The Bologna Score has never before been used as an instrument in a developing country, and therefore this study can be of great value for elaborating and improving the questions in the instrument (6). The questionnaire is a tool to evaluate the care in labour in a wider perspective, including other indications than only morbidity and mortality. The hypothesis is that, a study of the quality of care in labour in a developing country also can contribute to some development of persistent care routines. The questionnaire will hopefully give us a better knowledge of the care in labour and help us to find out what needs to be done to achieve good quality in intrapartum care in developing countries.

Another benefit with the study could be that it will make a contribution to enlighten the importance of having a skilled midwife during labour. In that way the study will hopefully contribute to ICM: s vision that every childbearing woman should have access to a midwife's care for herself and her newborn (48). With help of this study and the Bologna Score we may find out which elements that is needed for accomplish a healthy mother and a healthy child after labour. This could be a step in the right direction to achieve the WHO: s millennium goals (3).

One risk with the study could be that the filling in of the questionnaires will take time from the patient care. The questionnaire is however constructed to be short and easy to fill in, and will probably start fruitful reflections on how care is managed which could lead to future improvements of care adapted both to scientific evidence and local conditions. By letting the midwives/skilled attendants fill in the questionnaires we may start a process of reflection about the quality of care and

eventual improvements to be developed. Another possible risk with the study is that the participating midwives maybe will get tired of completing the questionnaires while there are many questionnaires to complete in a small number of participators. This could lead to a less numbers answered questionnaires and maybe that the questionnaires will be incorrectly answered. Though the Bologna Score never have been tested in a developing country before, there's no assurance that the instrument will work in DR Congo and this could also be a risk.

RESULTS

During the data collection there were totally 464 deliveries; 263 at Panzi and 201 at Chahi. The total number of answered questionnaires was 405. The response rate at Panzi was 82.9 % (n = 201) and at Chahi 93.0 % (n = 187). Of the 59 not included deliveries, 72.9 % (n = 43) were spontaneous vaginal deliveries, 1.7 % (n = 1) were instrumental deliveries and 25.4 % (n = 15) were caesarean section.

Indicator A

Indicator A describes how labour was started. The response rate was 99.7 % (n = 404). Of these 404 deliveries; 92.1 % (n = 373) had a spontaneous start of labour; 4.2 % (n = 17) was an elective caesarean section; 3.0 % (n = 12) was induction of labour and 0.5 % (n = 2) started with a bleeding placenta praevia.

Of the deliveries that started spontaneous (n= 373) two questionnaires did not have a completed Bologna Score and were thus excluded from further analyze. The questionnaires that were excluded were both spontaneous vaginal deliveries, one was judged as an abnormal delivery due to breech presentation.

Deliveries with a spontaneous start of labour and a completed Bologna score (n= 371) are visible in table 2, together with background variables (age, parity, gestational week) and mode of delivery. 87.3 % (n = 323) of the women who were planned for a vaginal delivery, had a vaginal delivery.

Table 2. Available Background Data for Deliveries with a Completed Questionnaire for Bologna Score

Background, Data	Completed Bologna Score (n = 371)
Age (yr), mean (SD)	26,3 (6,5) (n = 367)
Parity	
Nullipara (Obsteric nullipara included)	91
Multipara	280
Gestational week	
< 37	23
37-41+6	345
≥ 42	3
Mode of delivery	
Spontaneous vaginal delivery	323 (n = 370)
Instrumental delivery (forceps, vacuum extractor)	0 (n =370)
Emergency caesarean section	47 (n = 370)

Indicator B

Indicator B identifies the number of women with a spontaneous start of labour (n = 371) attended by a skilled attendant in labour. Labour was assisted by; midwives 83.0 % (n = 308); physicians 16.2 % (n = 60); student midwife 0.5 % (n = 2) and student physician 0.3% (n = 1).

Indicator C

A total Bologna Score of five points indicates that the delivery has been managed according to the best available evidence, in management for women with a spontaneous labour. This was not achieved for any case in this study. In table 3, the 5 items in the Bologna Score are presented. The presence of a companion and non supine position were scored nil in all cases. Table 3 also shows that a partograph, to follow the progress of labour, was frequently used and that the majority, 76.5 % (n = 284) of the deliveries were managed without interventions.The mean Bologna score was 1.95 (SD 0.73).

Table 3. Numbers and Percentages of Deliveries Scoring 1 Point for Each of the Items on the Bologna Score (n= 371)

Items in the Bologna Score	No. (%)
Presence of a companion	0 (0.0)
Use of a partograph	350 (94.3)
Skin-to-skin contact of mother and baby	89 (24.0)
Absence of augmentation; artificial stimulation of labour, forceps, vacuum extractor, caesarean section, fundal pressure, artificial rupture of membrane.	284 (76.5)
Non supine position	0 (0.0)

Background variables

None of the women did use nicotine during pregnancy. 93.7 % of the women (n = 367) were married or cohabiting and 6.3 % were single. 62 % (n = 193) of the women (n = 311) had a normal BMI in early pregnancy and 38% of the women were overweight or obese. Most of the women were judged to be in active labour (96.8 %) and at low obstetric risk on the arrival to the maternity clinic (86.7%, n = 319 of 368). Of the women that were judged to be at low risk, 59.9 % (n = 191) had a

normal birth (vaginal delivery, no interventions, no episiotomy, postpartum bleeding < 500 ml and Apgar score > 7). At Chahi this rate was 69.0% (n = 113) and at Panzi; 50.3% (n = 78). Table 4 shows a comparison between Panzi and Chahi in low-risk women about outcome and management in labour.

Table 4. Low Risk Women; in Chahi (n = 164); in Panzi (n = 155); Outcome and Management in Labour.

	Chahi centre hospitalièré	*Panzi general hospital*
	No. (%)	*No. (%)*
With agumentation	24 (16.6)	32 (20.6)
Episiotomy	25 (15,2)	47 (30.3)
Apgar score < 7	3 (1.8)	3 (1.9)
Postpartum bleeding > 500 ml	9 (5.5)	5 (3.2)

Additional questions

Of all of the deliveries that had a spontaneous start of labour, episiotomy was performed in 21.8 % (n = 81); 69.2 % (n = 63) in primigravida and 6.4 % (n = 18) in multigravida. At Chahi were 42 primigravida and 134 multigravida women. At Panzi there were 49 primigravida and 146 multigravida women. Figure 1 shows a comparison between episotomies in Panzi and Chahi.
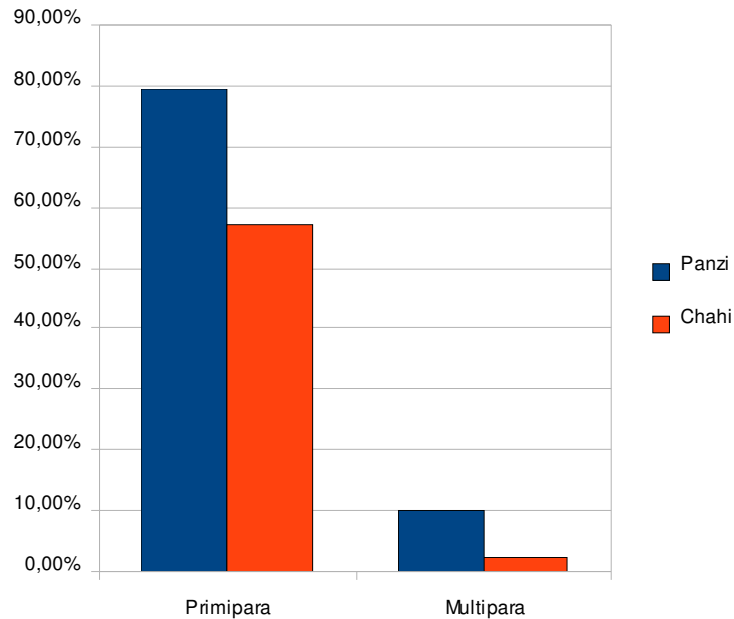
Figure 1. Episotomies in Primi- and Multigravida in Panzi and Chahi.

2.4 % (n = 9) babies had an Apgar score < 7 at 5 minutes after delivery. The percentage of women that had a post partum bleeding exceeding 500 ml was 4.3 % (n = 16)

The skilled attendants' judgement

97.6 % of the mothers (n = 369) was judged to be well after birth. Reason why the mother was not well was specified as: hypovolemic chock, bleeding, pain, mother psychological not well and breathing depression after anaesthesia. 95.4 % of the newborn babies (n = 371) was judged to be well after delivery. Reason why they were not well was specified as: asphyxia, stillbirth, low Apgar score, prematurity, respiratory problem and hypothermia.

84.8 % (n = 312) of the deliveries with a spontaneous start of labour were judge as normal. 56 deliveries were judged as not being normal. The reason for this was specified for 36 cases, these were: fundal pressure (n = 4), dystocia (n= 5), cervical rupture (n = 1), caesarean (n = 26), breech presentation (n = 1), premature (n = 2), Transversal position (n = 1). In some of the cases there was more than one specified reason.

The deliveries that were judged as normal consisted of a several different interventions and complications that are shown in table 6. The mother was judged not being well after the delivery in two cases, this was due to hypovolemic chock and psychological no wellbeing. Ten newborn babies were judged as not being well after delivery, this was due to stillbirth, tired baby, prematurity, hypothermia and asphyxia.

Table 6. Deliveries that were judged as normal (n=312)

Interventions and complications	No. (%)
Episiotomy	74 (23.7)
Fundal pressure	28 (9.0)
Baby not well after birth	10 (3.2)
Post partum bleeding > 500 ml	9 (2.9)
Caesarean section	8 (2.6)
Apgar score < 7 at 5 minutes	5 (1.6)
Artificial stimulation	4 (1.3)
Mother not well after birth	2 (0.6)
Artificial rupture of membranes	1 (0.3)

DISCUSSION

Methodological consideration

Validity

Validity refers to if an instrument, question or study measures what it was intended to measure (49). The strength with our method is that the Bologna Score has been

used and evaluated in a study before and this study showed that the validity of the Bologna Score was high (5).

Validity can be divided into internal and external validity. Internal validity is the validity of conclusions from the data about the population in an experiment. Threats to the internal validity could decrease the researcher's ability to draw correct conclusions (50). A threat to the internal validity in this study could be that we don't have a completed questionnaire for every delivery. The dropout is not high but however our conclusions cannot be based on the entire population. Another threat could be the fact that the participants may mature or change during the time of the study which could affect the result. In the questionnaire the participant had to make a judgement if the birth was normal. This could make the participants start to reflect about what is normal or not, especially if they are not used to make this judgment before. Former ideas and thoughts can then be questioned and result in to new ideas which could affect their responses in the questionnaire (50).

External validity is about generalizability and refers to whether the result and conclusions can be relevant for other populations than those being studied (50) It is hard to generalize the management of normal labour in this study to a bigger population, because the management is affected by many things such as attitudes, resources, knowledge and culture. Furthermore our population compromises only 371 births and therefore the management of normal labour in this population cannot be said to be equivalent with the management of labour in the whole population of D R Congo.

Reliability

Reliability refers to whether the same result would be achieved if the study was to be repeated. It refers to the consistency of a measure (49). To obtain as high quality as possible in this study, we were present at the maternity clinics to answer any questions from the participants. We believe that our presence had a positive effect on the quality of the result; this because it increased the number of completed questionnaires and insured more accurate answers. However the need of our presence could decrease the reliability in the study, because if the study was to be repeated, the

same result may not be achieved. To obtain a high reliability a questionnaire needs to be clear and easy to understand.

The Questionnaire

We found that the questionnaire in some ways was difficult for the participants to understand and some questions had an unclear construction. Due to the pilot study some changes were done in the questionnaire. Changes were done to get accurate answerers that agreed with the questions in order to increase the quality of the study.

During the data collection of the main study we had to explain some questions in the questionnaire repetitively for the participants. A question that needed a lot of explanations was question number nine, about low risk and high risk. The question contains a lot of text that needs to be read trough in order to be able to answer. We found that the participants in some cases forgot to answer this questions and that it sometimes was apparent that they had answered in a wrong way because they had not read the whole question. When a situation like this occurred we had to go back with the questionnaire and ask about this specific delivery. Another question that was easily misunderstood was C 3, about augmentation. The sentence is formulated with a negation, which we experienced that the participators easily missed.

Bologna Score

A score of five points in Bologna score is intended to represent an evidence based management in labour (6). We believe that the five components in Bologna Score could correspond to the core of management in normal birth, and that the instrument is a short and easy indicator for the quality of care. But we suggest that Bologna Score needs to be compounded with additional questions about the management of labour in order to determine how well the management corresponds to available evidence based care.

The Bologna Score is constructed to be used as a quality indicator in both developed and developing countries (6). We think that it is hard to construct such an instrument, but we believe Bologna Score could be a good quality indicator in both developed and developing countries. The instrument is created from available research of

evidence based care. But definitions of, for example support during labour, vary in different cultures. The question about support was perhaps hard for the participants in this study to understand, because their definition didn't correspond to the definition in Bologna Score. Available research today about support promotes the presence of a supporting companion. The available research today could perhaps be questioned. Are culture and norms taken in considerations in available research today?

The evidence informs us about the importance of support during labour and its crucial role for the outcome of delivery (26). The Bologna Score investigates how well the management correlates with the evidence of support, when it comes to presence of a skilled attendant and presence of a companion. However the Bologna Score cannot describe what kind of support that was given and to what extent. This could be a very interesting and important aspect in the evaluating of intrapartum care. But to construct a question like this in an objective way could be quite a challenge.

Bologna Score measures how many women that give birth in a non supine position and this aims to reflect the presence of evidence based practice (6). What kind of position the woman had during delivery is not the only interesting thing but also the positions throughout the whole labour. Women adopting upright positions in the first and second stage of labour tend to have shorter labours, experience less pain and have more satisfaction with the birth experience. According to evidence restriction of movements can compromise normal labour (26). Therefore a question to evaluate the positions throughout both labour and delivery would be justified.

Dropout

In a survey it is important to have as many answers as possible, this will promote a more correct picture of what the study aims to investigate (44). The dropout of this study was rather small, 12.7 percent of the total number of deliveries were not answered with a questionnaire. A well prepared and well implemented study should have an answering frequency around or above 80 % (45). The number of midwifes, nurses and physicians are quite low in relation to the high number of deliveries. The reason why a questionnaire was not answered for every delivery could be referred to

a stressful situation at the maternity clinic. A higher rate of caesareans and instrumental deliveries are seen in the dropout group which could implicate that there were no time to answer a questionnaire or to remember to answer it. There were also a higher number of deliveries during the days with major dropouts.

Reflection of the result

The result of this study suggest that some changes needs to be done on the questionnaire used in this study in order to get a more detailed picture of the management of normal labour in the two maternity clinics in D R Congo.

The management of birth at Chahi and Panzi

A score of five points in the Bologna Score was not achieved in any of the two maternity clinics. According to Chalmers and Porter (6) this indicates that the intrapartum care does not follow the best available evidence for care in normal birth. The result shows a low mean value of the Bologna Score at both of the clinics. The two variables that caused the high loss of Bologna Score were: presence of a companion and use of non supine position during delivery. None of the women, at both Chahi and Panzi had a companion with them during labour and delivery and all of the women gave birth in a supine position.

It is hard to give any reasons to why the presence of companion not was promoted or allowed at the maternity clinics. Both of the maternity clinics are small and two women were often in the delivery room at the same time, the reason could be that there was not enough room for any companion. The attitudes at the maternity clinics towards accompany during labour differed a lot from each other. Some participants thought that the presence of a companion could bring many positive effects for the woman as well as labour and delivery. Some participants expressed that it is an issue of culture and to let a companion be present in the labour and delivery room is not anything that is given in their culture, especially not if the companion is a man. According to evidence support provided by non staff members are generally more effective than support by institutional staff, this underlines the importance of a companion during labour (24).

All of the women in this study gave birth in a supine position; this was not a choice of their own but a routine of the clinic. Why only this position was used we don't know, perhaps it could be a question of attitudes from the skilled attendants. Birthing positions adopted by women is influenced by several factors, including instinctive behaviour and cultural norms. In parts of the developing world (such as parts of Asia, Africa and the Americas) squatting, for example, is a common sitting posture. In the United Republic of Tanzania, women who deliver at home with the help of traditional birth attendants or relatives use squatting or other upright positions chosen by the woman. Contrary to this cultural practice, almost all women who give birth at health care facilities do so in supine recumbent position. It is possible that the lack of options in birthing positions at health care facilities could contribute women to choose to give birth at home with unskilled persons rather than delivering at a health care facility. Only 47% of Tanzanian women give birth at a health care facility. In developed countries, where childbirth is medicalized, maternal monitoring and clinical interventions during labour are thought to limit women's birthing position options (51).

All of the deliveries with a spontaneous start of labour were assisted by skilled attendants, either midwives, nurses or physicians. In a small number of cases birth was assisted by a student midwife and a student physician, were the midwife and physician had the main responsibility. This corresponds well with WHO:s goals about coverage of skilled attendants. However, according to WHO, two deliveries of five occurs at home without assistance of a skilled birth attendant in a developing country (4).

Labour was in majority assisted by a midwife or a nurse (83.0%) and to a smaller extent by a physician (16.2%). At both of the clinics, the midwife or nurse was responsible for the normal labour and if something differed from the normal, they called for a physician. To know whether the progress of labour was progressing normally the midwives and nurses used a parthograph for almost every delivery (94.3 %). According to a study done in Pakistan, 2002, the use of a parthograph in the supervision of the woman in labour is beneficial for the outcome and mode of the delivery. The use of a parthograph prevents prolonged labours and complications. It is a simple and efficient instrument and useful in both developed and undeveloped countries (52).

A quite large proportion, 74.4 % of the babies were placed skin-to-skin with the mother immediately after delivery. But only 24 % of all babies had skin-to-skin contact with the mother for at least 30 minutes. Skin-to-skin as a management was quite recently introduced at the maternity clinics. Even though the skilled attendants was well aware of the positive effects in putting the baby skin-to-skin with the mother, a low frequency of babies were having skin-to-skin contact for more than 30 minutes. Why the babies were not put skin-to-skin for a longer time we don't know. Maybe this depends on that skin-to-skin contact is a new knowledge for the nurses and midwives and they haven't yet formed it as a routine. Another speculation is that the mothers didn't know about the benefits with skin-to skin contact or didn't want to have the baby placed on her chest. Many studies have showed positive effects in skin-to-skin contact, this invites implementation of skin-to-skin contact as a standard routine of care for healthy full-term infants (53).

The augmentation that was most used was emergency caesarean section and fundal pressure. Of all the deliveries that had a spontaneous start of labour; 12.7 % was caesarean sections and 9.4 % was performed with fundal pressure. According to evidence, unnecessary augmentation in labour and delivery are harmful to women and infants (15). Women undergoing caesarean delivery have an increased risk of severe maternal morbidity compared with women undergoing vaginal delivery and up to five times the risk of a postpartum infection compared with women undergoing vaginal delivery (54).

There is no published scientific evidence that fundal pressure is an appropriate or safe technique to shorten the second stage of labour. In fact very little is written about fundal pressure and the outcome of labour and the mother and child. Maternal perineal injures such as third- and fourth-degree lacerations and anal sphincter tears have been found to be associated with fundal pressure. Fundal pressures can contribute to fetal injuries such as brachial plexus stretching and neurological and orthopaedic injures due to undue force on bony parts. In a situation where a shoulder dystocia is identified, fundal pressure should be avoided. Fundal pressure in these circumstances will likely further impact the anterior shoulder, delay birth and increase the chances for fetal injury (55). A Cochrane review from 2009 implicates that there is no evidence available to conclude on beneficial or harmful effects of manual fundal pressure (56).

The results show that the rate of episiotomies is high in primigravida women. Episiotomies were performed at the majority of the primigravida women at both of the maternity clinics; 79.6 % at Panzi and 57.1 % at Chahi. The skilled attendants at Panzi expressed that they had a restrictive use of episotomies but still the result show that they perform episiotomy on almost every primigravida. Three years ago at Chahi they performed episiotomy on every primigravida as a rule, but today they have adapted a more restrictive management. This is mainly because of the high number of women with Human Immunodeficiency Virus [HIV] and the increased risk of contamination while performing episiotomies. The main rule at both of the maternity clinics is that it is better to perform episiotomy than to allow the woman to get a perineal tear.

The rate of instrumental deliveries was 0 %. This could be due to the lack of recourses at both of the maternity clinics. At Chahi they have no forceps and no vacuum extractor. At Panzi they have a vacuum extractor but it is not used very often, we don't know the reason for this.

In the total number of deliveries, there was just one woman that was an obstetrical primigravida. This result can be discussed; during our time in the hospital we noticed that there were many women that had an earlier caesarean section and had never given birth vaginally. This makes us doubt about the result – can we trust it? And it makes us curious about if the skilled attendants at both of the hospitals judge the women as an obstetrical primigravida or not. Maybe they don't use this definition or they have forgotten to complete that option in the questionnaire. However, if a woman has had an earlier caesarean section, a caesarean was planned for the next delivery if the date of birth was less than two years after the last caesarean section.

Risk assessment during pregnancy

According to the WHO, generally between 70 and 80% of all pregnant women may be considered as low risk at the start of labour. This means that 70-80% of the pregnant women ought to be planned for a vaginal birth, but there are no assurance that a low risk pregnancy at the start of labour will become an uncomplicated delivery and without interventions (15). 86.7 % of the women at both of the maternity clinics were judged to be at low risk at the start of labour. 59.9 % of these

had a normal delivery. The high risk pregnancies were mostly referred to; earlier caesarean section; age and small pelvic. No high diastolic blood pressure, earlier post partum bleeding or diabetes was detected in the high risk group according to the answers in the questionnaire. Risk assessment during the antenatal consultations is continuously done at both maternity clinics. The pregnant woman is offered antenatal consultation one time per month. Their risk factors for pregnancy and childbirth was defined as: age < 18 years, age > 30 years, multiparty (>6), height < 149 cm, weight in early pregnancy < 45 kg or > 80 kg, small pelvic or disproportion between pelvic and baby, earlier caesarean section or other medical condition such as diabetes, high diastolic blood pressure, anaemia or post partum bleeding. According to evidence, the defining of obstetric risks by demographic factors such as parity and maternal height has a low specificity and could results in many uncomplicated deliveries being labeled as high risk. The specificity of complications in the obstetric history or in the present pregnancy is much higher (15).

A low number of women in gestational week > 42, was identified at both Chahi and Panzi. One reason for this could be related to their ability to estimate the exact time of gestational week. Ultrasound is rarely used for this purpose and the length of pregnancy is instead based on the last day of menstruation. Many pregnant women however don't always know their last day of menstruation while still breastfeeding and maybe have irregular ovulations and this also increases the uncertainty of the exact gestational week.

The judgment of normal birth

The last question in the questionnaire is about a judgement. This judgement is up to the participating skilled attendant to take and it is about if they found the delivery normal or not. The midwives, nurses and physicians judged 84.2 % (n = 312) as normal deliveries, many of these (31%) were managed with interventions (artificial stimulation, fundal pressure, artificial rupture of membrane, episiotomies, caesareans) and included some complications for mother and baby. Eight deliveries were caesareans and 28 were performed with fundal pressure and were still judged as normal. The understanding of the concept normal could perhaps be confusing and be mistaken for what is common. As caesareans and fundal pressure are common at both Chahi and Panzi this could be defined as something normal. However in this

study, interventions in a large number are by the skilled attendants considered being a part of normal birth. Normal birth is according to the evidence a goal for achieving a healthy mother and child (15). A clear understanding on what is normal is therefore important.

CONCLUSION

We believe that the findings in our study have responded to our objective about describing how birth is managed in to two chosen maternity clinics in eastern D R Congo. With the help of the questionnaire we have received a picture about the management of normal labour in the two clinics. We suggest that the questionnaire can be used as a measure for the quality in intrapartum care. But we propose that some changes need to be done in the questionnaire in order get a more detailed picture of the management and to be able to evaluate the level of evidence based care. According to the Bologna Score the management of normal labour at Chahi and Panzi are not based on the best available evidence. To achieve a five point Bologna Score, some changes in routines, management and attitudes need to be done. Furthermore the reason for a low Bologna Score could also be related to the limitation of resources and this need to be taken in consideration when the Score is evaluated. The findings in this study could be an indicator for some changes and new routines but still further research about management in labour at the maternity clinics needs to be done.

Implications for further research

During our data collection many questions about the management of labour aroused and there are many areas left to be explored. For example, it could be valuable to find out more about the attitudes among the skilled attendants due to our conclusions that attitudes play a big role in the care in labour. We believe that support is a very interesting issue in this context, a suggestion for further research could be to investigate the knowledge and attitudes towards support. To explore this concept, interviews could be conducted with both the skilled attendants and the women in labour. This could perhaps also be combined with an observation study.

Pain and pain treatment are central concepts in labour and it could be valuable to explore both attitudes and knowledge about this. In our study, no women in normal labour had access to pain treatment. Is pain seen as something natural and inevitable, which the women must endure? Is there a need for pain treatment?

REFERENCES

1. Beverly A, Lawrence B, Phipps B. Normal birth: women's stories. In: Downe, S. Editor. Normal birth – evidence and debate. 2nd ed. Edinburgh: Elsevier; 2008. p. 67-81

2. Hatem M, Sandall J, Devane D, Soltani H, Gates S. Midwife-led versus other models of care for childbearing women. Cochrane Database Syst Rev. 2008;(4):CD004667.

3. World Health Organization. Making pregnancy safer. Avaible from: http://www.who.int/making_pregnancy_safer/topics/maternal_mortality/en/index.html Assessed February 10th 2009.

4. World Health Organization. Strengthening Midwifery Tool-kit. Module 4. Competencies for midwifery practice. 2007.

5. Sandin-Bojö A- K, Kvist JL. Care in labor: A swedish survey using the bologna score. Birth. 2008;35(4):321-328.

6. Chalmers B, Porter R. Assessing effective care in normal labor: The Bologna score. Birth. 2001;28(2):79-83.

7. World Health Organization. Reproductive health. Available from: http://www.who.int/topics/reproductive_health/en/ Assessed May 25th 2009.

8. World Health Organization. Maternal health. Available from: http://www.who.int/topics/maternal_health/en/ Assessed May 25th 2009

9. Sundström K. Kvinnors hälsa. 2nd ed. In: Faxelid E, Hogg B, Kaplan A, Nissen E. Editor. Lärobok för barnmorskor. Lund: Studentlitteratur; 2001. p. 24-31.

10. Glasier A, Gülmezoglu M, Schmid G P, Garcia Moreno C, Van Look P. Sexual and Reproductive health: a matter of life and death. Lancet. 2006; 368(4):1595-1607.

11. Gould D. Normal labour; a concept analysis. J Adv Nurs. 2000; 31(2):418-426.

12. Berg M. Genuine Caring in Caring for the Genuine- childbearing and high risk as experienced by women and midwives. [Dissertation]. Uppsala: Uppsala University; 2002.

13. Downe S, Mcourt C. From being to becoming: reconstructing childbirth knowledges. In: Downe, S. Editor. Normal Childbirth- evidence and debate. 2nd Ed. Edinburgh: Elsevier; 2008. p. 1-28.

14. Nordström L, Waldenstöm U. Socialstyrelsen. State of the art – Care in normal birth. Stockholm, Sweden: The Swedish national board of health and welfare; 2001.

15. World Health Organization. Care in Normal Birth: A Practical Guide. Geneva, Switzerland: WHO, Maternal and Newborn Health and Safe Motherhood Programme, Division of Family Health, 1996.

16. Downe S. Is there a future in normal birth? Who knows what 'normal birth' really means today? Pract Midwife. 2001 Jun; 4(6):10-12.

17. Fraser D M, Cooper M A. Myles textbook for midwives. 14th ed. Churchill Livingstone. Edinburgh. 2008.

18. Mcdonagh M. Is antenatal care effective in reducing maternal morbidity and mortality? Save the Children Fund, London. Health Policy Plan. 1996;11(1):1-15.

19. Prual A, Toure A, Huguet D, Laurent Y. The quality of risk factor screening during antenatal consultations in Niger. Health Policy Plan. 2000;15(1):11-16.

20. Sandin-Bojö AK, Larsson BW, Axelsson O, Hall-Lord ML. Intrapartal care documented in a Swedish maternity unit and considered in relation to World Health Organization recommendations for care in normal birth. Midwifery. 2006 Sep;22(3):207-217.

21. Romano A M, Lothian J A. Promoting, protecting and supporting normal birth: a look at the evidence. JOGNN. 2008; (37):94-105.

22. Hotelling B A. The Coalition for Improving Maternity Services: Evidence Basis for the Ten Steps of Mother-Friendly Care. J Perinat Educ. 2007:16(2):38-43.

23. Leslie MS, Storton S. Step 1: Offers All Birthing Mothers Unrestricted Access to Birth Companions, Labor Support, Professional Midwifery Care. The Coalition for Improving Maternity Services. J Perinat Educ - Supplement. 2007:16(1)10-19.

24. Hodnett ED, Gates S, Hofmeyr GJ, Sakala C. Continuous support for women during childbirth. Cochrane Database Syst Rev. 2007;(3)CD003766

25. Lawrence A, Lewis L, Hofmeyr GJ, Dowswell T, Styles C. Maternal positions and mobility during first stage labour. Cochrane Database Syst Rev. 2009;15;(2):CD003934.

26. Grupta JK, Hofmeyr GJ, Smyth RMD. Position in the second stage of labour for women without epidural anaesthesia. Cochrane Database Syst Rev. 2004;(1):CD002006.

27. Soong B, Barnes M. Maternal-position at midwife attended birth and perineal trauma- is there an association? Birth. September 2005;32(3):164-169.

28. Leslie MS, Romano A, Woolley D. Step 7: Educates Staff in Nondrug Methods of Pain Relief and Does Not Promote Use of Analgesic, Anesthetic Drugs. The Coalition for Improving Maternity Services. J Perinat Educ - Supplement. 2007:16(1) 65-73.

29. Sizer AR, Evans J, <u>Bailey SM</u>, <u>Wiener J</u>. A second stage partogram. Obstet Gynaecol. 2000 Nov;96:678-683.

30. Basu JK, Buchmann EJ, Basu D. Role of a second stage partogram in predicting the outcome of normal labour. Aus NZJ Obstet Gynaecol. 2009;49:158-161.

31. Dahlen HG, Ryan M, Homer CSE, Cooke M. An Australian prospective cohort study of risk factors for severe perineal trauma during childbirth. Midwifery 2007;23:196-203.

32. Carroli G, Mignini L. Episiotomy for vaginal birth. Cochrane Database Syst Rev. 2009; (1):CD000081.

33. International national joint policy statement. Management of the third stage of labour to prevent postpartum hemorrhage. JOGCN. 2003;25(11):952-953.

34. Stanton C, Armbruster D, Knight R, Ariawan I, Gbangbade S, Getachew A et al. Use of active management of the third stage of labour in seven developing countries. Bull world Health Organ. 2009;87:207-215.

35. Mcasey B, Donald MD, Mcintrive D, Kenneth J, Leveno MD. The continuing value of the Apgarscore for the assessment of newborn infants. N Engl J Med. 2001; 344(7):467-471.

36. Ehrenstein V, Pedersen L, Grijota M, Lauge Nielsen, Rothman J, G K, Sørensen Toft, H. Association of Apgar Score at five minutes with long-term neurologic disability and cognitive function in a prevalence study of Danish conscripts. BMC, Pregnancy and Childbirth. 2009;9(14).

37. Crenshaw J, Phyllis H K, Marshall H K. Care practices that promote normal birth, nr.6: no separation of mother and baby with unlimited opportunity for breastfeeding. Lamaze International Education Council. J Perinat Educ. 2004;13(2):35-41.

38. Bystrova, K. Skin to skin Contact and suckling in early postpartum; Effects on temperature, breastfeeding and Mother-Infant interaction. A study in St. Petersburg, Russia.[dissertation] Karolinska institutet: Stockholm;2008.

39. Moore ER, Anderson GC, Bergman N. Early skin-to-skin contact for mothers and their healthy newborn infants. Cochrane Database Syst Rev. 2007; (3):CD003519.

40. BBC. Available from URL: http://news.bbc.co.uk/1/hi/world/africa/country_profiles/1076399.stm#facts Accessed February 15th, 2009.

41. World Health Organization. Health statistics and health information systems. Assecced February 10th, 2008. Avaliable from URL: http://www.who.int/healthinfo/statistics/regions/en/index.html

42. Christian Reilief Network, Assessed February 17th, 2009. Avaible from URL: http://www.crn.no

43. Panzi general hospital. Assessed February 17th, 2009. Available from URL: www.panzihospitalbukavu.org

44. Eriksson A. Kvantitativ metod från början. Lund: Studentlitteratur; 2006.

45. Eljertsson G. Enkäter i praktiken. En handbok i enkätmetodik. 2nd ed. Lund: Studentlitteratur; 2005.

46, Vård I Norden. Ethical guidelines. Assessed February 22nd, 2009. Available from URL: www.vardinorden.org/ssn/etikk.pdf

47. Sveriges Riksdag. Assessed February 26th, 2009 Available from URL: www.riksdagen.se

48. ICM. Accessed February 22nd , 2009. Available from URL: http://www.internationalmidwives.org/AboutICM/MissionVision/tabid/226/Default.aspx

49. Olsson H, Sörensen S. Forskningsprocessen. Kvalitativa och kvantitativa perspektiv. 2nd ed. Stockholm: Liber AB; 2007.

50. Creswell J W. Research design. Qualitative, quantitative and mixed methods approaches. 3rd ed. California: SAGE Publications, Inc; 2009.

51. World Health Organization. The WHO Reproductive Health Library. Position in the second stage of labour for women without epidural anaesthesia. Assessed December 14th. Available from URL: http://apps.who.int/rhl/pregnancy_childbirth/childbirth/2nd_stage/tlacom/en/index.html

52. Javed I, Shereen B, Tabassua S. Role of partogram in preventing prolonged labour. J Park Med Assoc. 2007: 57(8):408-411.

53. World Health Organization- Early skin- to-skin contact for mothers and their healthy newborn infants. Assessed February 18th. Available from URL: http://apps.who.int/rhl/newborn/hsguide2/en/

54. Villar J, Carroli G, Zavaleta N, Donner A, Wojdyla D, Faundes A et al. Maternal and neonatal individual risks and benefits associated with caesarean delivery: metacentre prospective study. BMJ . 2007;335(7628):1001-1002.

55. Simpsons K R, Knox G E. Fundal pressure during second stage of labour: Clinical perspectives and risk management issuses,. MCN, Am J Matern Child Nurs. 2001;26(2):64-71.

56. Verheijen EC, Raven JH, Hofmeyr GJ. Fundal pressure during the second stage of labour. Cochrane Database Syst Rev. 2009;(4):CD006067.

GÖTEBORGS UNIVERSITET
SAHLGRENSKA AKADEMIN

INFORMATION FOR RESEARCH PARTICIPANTS

A survey on care in labour; in Bukavu, the Democratic Republic of Congo

BACKGROUND AND PURPOSE
Quality in intrapartum care has by convention been measured in terms of mortality and morbidity in women and their newborns but also in rates of delivery outcomes such as vaginal spontaneous birth, vaginal instrumental birth, caesarean section and low Apgar. Research indicates that high quality intrapartum care includes several factors concerning care through the whole process during labour and delivery.

The aim of this study is to evaluate the intrapartum care in several dimensions, including both medical and psychological care by evaluating how normal birth is managed in Bukavu, Syd-Kivu, DR. Congo.

THE IMPLEMENTATION OF THE STUDY
The study will take place at two maternity clinics in Bukavu, at the Panzi Hospital and Chahi "medical centre during a time period of six weeks. The participation in the study implies filling in a questionnaire concerning the care of each woman in labour during this period. Main person to do this is the midwife attending at the specific delivery or other relevant health care professional. The questionnaire contains a few questions easy to fill in. We, Helena Yngfors and Therese Andersson will be at the maternity clinics throughout the whole data collection process, available to answer any questions related to the study or filling of the questionnaire.

The participation in the study is voluntary and the questionnaires will be filled in confidentially. The questionnaires will be coded and de-identified. The participation in the study can without any reason be terminated by the participants at any time during the study. We have got approval to perform this study from CEPAC (Communauté des Englises Pentecôte en Afrique Centrale) and the medical faculty of the UEA (Universitée Evangélique en Afrique central), as well as from the institution of Health and Care science, the Sahlgrenska Academy, university of Gothenburg.

TO OBTAIN INFORMATION ABOUT THE RESULT OF THE STUDY
The result of the study will be presented in a report at the University of Gothenburg. For any questions please contact the responsible for the study.

Best regards

Midwifery students: Helena Yngfors (chrysaora@live.se) and Therese Andersson, thea2andersson@hotmail.com
Supervisor and responsible researchers: Marie Berg, midwife, Ass Professor in Caring sciences at University of Gothenburg, Institute of Health and science. marie.berg@gu.se
Participative researcher: Ann-Kristine Sandin-Bojö, midwife. Senior Lecturer at Karlstad University, Department of Nursing.
Local supervisor: Esperence Nzigire & Dr Mwanza Nangunia, CEPAC/UEA, Bukavu.

GÖTEBORGS UNIVERSITET
SAHLGRENSKA AKADEMIN

CONSENT FORM

Care in Labour: A survey in Bukavu, the Democratic Republic of Congo

I have taken part of the information about the study "Care in Labour: A survey in Bukavu, the Democratic Republic of Congo". I am aware that my participation is voluntary and that I have the ability to terminate my participation at any time.

This document will be signed in two copies. I will keep one of the copies and the other one will be kept by the midwifery students Helena Yngfors and Therese Andersson who are implementing the study.

_____
Place and date

_____
Name

_____
Clarification of signature

Midwifery students: Helena Yngfors (chrysaora@live.se) and Therese Andersson, thea2andersson@hotmail.com
Supervisor and responsible researchers: Marie Berg, midwife, Ass Professor in Caring sciences at University of Gothenburg, Institute of Health and science. marie.berg@gu.se
Participative researcher: Ann-Kristine Sandin-Bojö, midwife. Senior Lecturer at Karlstad University, Department of Nursing.
Local supervisor: Esperence Nzigire & Dr Mwanza Nangunia, CEPAC/UEA, Bukavu.

Appendix 1B

GÖTEBORGS UNIVERSITET
SAHLGRENSKA AKADEMIN

INFORMATION POUR LES PARTICIPANTS A LA RECHERCHE

Une étude sur les soins pendant l'accouchement; à Bukavu, République Démocratique de Congo

CONTEXTE ET BUT
La qualité des soins en intrapartum a par convention été mesurée en termes de mortalité et de morbidité des femmes et leurs nouveau-nés mais aussi, en terme de taux de résultats tels que les naissances vaginales spontanées, les naissances vaginales, les césariennes et « Apgar score ». La recherche indique que la haute qualité des soins en intrapartum inclut plusieurs facteurs relatifs aux soins, à travers le processus entier du travail jusqu'à l'accouchement.
 Le but de cette étude est d'évaluer les diverses dimensions de la prise en charge en intrapartum, incluant les soins médicaux et la prise en charge psychologique en évaluant comment la naissance normale est dirigée à Bukavu, Sud-Kivu, RD.Congo.

LA MISE EN OEUVRE DE L'ÉTUDE
L'étude aura lieu à deux cliniques de la maternité dans Bukavu, à l'Hôpital General de Referance de Panzi et au centre hospitalier de Chahi " pendant une période de six semaines. La participation dans l'étude implique le remplissage d'un questionnaire sur les soins de chaque femme en travail pendant cette période. La personne principale à faire ceci est l'accoucheuse qui assiste à l'accouchement ou autres soins de santé professionnels pertinents. Le questionnaire contient quelques questions faciles à remplir. Nous, Helena Yngfors et Therese Andersson serons aux cliniques de la maternité partout dans le processus entier de collecte des données, disponibles pour répondre à toute question en rapport avec l'étude ou le remplissage du questionnaire.

Les questionnaires seront remplis confidentiellement. Les questionnaires seront codés et seront anonymes. La participation dans l'étude ne peut, sans aucune raison être déterminée par les participants pendant l'étude ou n'importe quand. Nous avons l'approbation de la CEPAC (Communauté des Eglises de Pentecôte en Afrique Centrale)pour exécuter cette étude et de la faculté de médecine de l'UEA (Université Evangélique en Afrique), aussi bien que de l'institution de Santé et science des Soins, l'Académie Sahlgrenska, université de Gothenburg.

OBTENIR DE I'INFORMATION AU SUJET DU RÉSULTAT DE L'ÉTUDE
Le résultat de l'étude sera présenté dans un rapport à l'Université de Gothenburg. Pour toutes questions, s'il vous plaît, contactez le responsable pour l'étude.

Les meilleures amitiés
Les étudiants de la formation d'accoucheuse: Infirmière Helena Yngfors (chrysaora@live.se) et infirmière Therese Andersson, thea2andersson@hotmail.com,
Directeur et chercheurs responsables: Marie Berg, infirmière accoucheuse, PhD, « Associate professor » dans sciences « Health and care sciences » à l'Université de Gothenburg, Institut de science de la santé et soins. marie.berg@gu.se
La chercheuses participantes: Anne-Kristine Sandin-Bojö, infirmière accoucheuse, PhD., l'Université Karlstad, Département d'Allaitement.
Les superviseurs locaux: Espérance Nzigire & Dr Mwanza Nangunia, CEPAC/UEA Bukavu.

Appendix 1B

LA FORME DU CONSENTEMENT
Souciez-vous du travail: Une étude dans Bukavu, République Démocratique de Congo
J'ai lu l´information sur l´étude. Je suis informé que ma participation est volontaire et que nous avons la capacité de l'annuler à n'importe quel moment.

_____
Place et date

_____
Le nom

_____

Accoucheuse / Responsable de la maternité (définissez lequel) signature

GÖTEBORGS UNIVERSITET
SAHLGRENSKA AKADEMIN

INSTRUCTIONS FOR FILLING IN THE QUESTIONNAIRE-
"CARE IN LABOUR"

1. The questionnaire consists of three pages with four sections (A, B, C and D). The first nine questions are background variables about the woman in labour. These questions and section A and B in the questionnaire will be filled in for all of the women.

2. Questions in section C and D only concerns the women in **normal** labour*. The definition of normal labour is:

"on the arrival at the maternity unit the women was judged to be at low risk, i.e. the woman was in gestational week 37 - 41+6, with a singleton pregnancy, baby in cephalic presentation, normal fetal heart rate(110-150 beats/min), spontaneous contractions/rupture of membranes with clear amniotic fluid, diastolic blood pressure < 90 mmHg, no earlier (caesarean section, previous still birth, haemorrhage > 1000 ml, rupture of the anal sphincter) or present obstetrical risks (e.g. breech presentation, intrauterine fetal growth retardation (SGA)) or medical conditions which may effect the management of delivery."

3. It is important that the questions are filled in correctly. Read the questionnaire carefully and if there is any question you don't understand, please tell us and we will explain.

4. The questionnaire shall be filled in as soon as possible after finished labour. If there are any questions that are difficult to answer in a specific case of labour, please do notes, and ask us when we pass next time.

*You can see the definition of "normal labour" in question number nine in the questionnaire.

Best Regards

Midwifery students: Helena Yngfors chrysaora@live.se and Therese Andersson, thea2andersson@hotmail.com
Supervisor and responsible researchers: Marie Berg, midwife, Ass Professor in Caring sciences at University of Gothenburg, Institute of Health and science. marie.berg@gu.se
Participative researcher: Ann-Kristine Sandin-Bojö, midwife. Senior Lecturer at Karlstad University, Department of Nursing.
Local supervisor: Esperence Nzigire & Dr Mwanza Nangunia, CEPAC/UEA, Bukavu.

GÖTEBORGS UNIVERSITET
SAHLGRENSKA AKADEMIN

DIRECTIVES POUR REMPLIR LE QUESTIONNAIRE -PRISE EN CHARGE PENDANT L´ACCOUCHEMENT

1. Le questionnaire consiste en trois pages avec quatre sections (A, B, C et D). Les neuf premières questions sont des variables au sujet de l'origine de la femme en accouchement. Ces questions des sections A et B dans le questionnaire seront posées à toutes les femmes a salle d´accouchement.

2. Les questions des sections C et D intéressent seules les femmes en « accouchement normal ». La définition du travail normal étant:
" à l'arrivée de la femme à l'unité de la maternité a été jugée de risque bas, c.-à-d. :
- la femme est dans la semaine gestationnelle 37 - 41+6,
- avec une grossesse singleton, avec présentation céphalique, bruit du cœur fœtal normal (110-150 battements/min),
- contractions/rupture spontanées des membranes avec fluide amniotique clair,
- tension diastolique <90 mmHg,
- aucun antécédent de ; césarienne, naissance immobile antérieure, hémorragie < 1000 ml, rupture du sphincter anal,
- sans présence des risques obstétricaux (par exemple présentation de la culasse (Siège), retard de l'augmentation fœtale intra-utérin (SGA) ou sans conditions médicales qui peuvent affecter la conduite de l'accouchement".

3. C'est important que les questions soient remplies correctement. Lisez le questionnaire avec soin et s'il y a toute question que vous ne comprenez pas, s'il vous plaît, dites-nous et nous expliquerons.

4. Le questionnaire sera rempli aussitôt que possible après la fin de l´accouchement. S'il y a des questions qui sont difficiles à répondre dans un cas spécifique du travail, s'il vous plaît faites des notes, et demandez-nous quand nous passons la prochaine fois.

Les meilleures Amitiés
Les étudiants de la formation d'accoucheuse: Infirmière Helena Yngfors et infirmière Therese Andersson
Directeur et chercheurs responsables: Marie Berg, infirmière accoucheuse, PhD, « Associate professor » dans sciences « Health and care sciences » à l'Université de Gothenburg, Institut de science de la santé et soins.
La chercheuses participantes: Anne-Kristine Sandin-Bojö, infirmière accoucheuse, PhD., l'Université Karlstad, Département d'Allaitement.
Les superviseurs locaux: Espérance Nzigire & Dr Mwanza Nangunia, CEPAC/UEA Bukavu.

Appendix 3A

_____

Name of hospital ....No.......

1.	**The woman's age (in years).......................**
2.	The child's date of birth (yyyymmdd).........................
3.	Gestational week (encircle one alternative)? a. < 37 b. 37 – 41+6 c. ≥42

4.	Parity (encircle one alternative)?
	
	      a. Primigravida
	      b. Multigravida
	      c. Obstetric primigravida (Earlier caeserean)

5.	Smoking habits (encircle one alternative)? a. Never b. 1-9cig/day c.≥10 cig/day d. Other tobacco, specify.............
6.	Weight and length in early pregnancy? a. Weight (kilogram)?........... b. Length (cm).......
7	Civil status (encircle one alternative)? a. Married/co-habiting b. Single c. Other, specify...

8	On admission to the maternity unit, was the woman in active labour:
	 (i.e. *at least 2 of the following 3 criterion were met; regular uterine contractions (at least 2 contractions per 10 min, spontaneous rupture of membranes or cervix dilated 3 cm or more?*)
	
	    Yes
	    No

Appendix 3A

_____

9.	On arrival at the maternity unit, was the woman judged to be at low risk? (i.e. *gestational week 37 - 41+6, a singleton pregnancy, baby in cephalic presentation, normal fetal heart rate (110-150 beats/min), spontaneous contractions/rupture of membranes with clear amniotic fluid, diastolic blood pressure < 90mmH, no earlier or present obstetrical risks (caesarean section, previous still birth, haemorrhage > 1000ml, rupture of the anal sphincter, presence of obstetrical risk (e.g. breech presentation, interuterine fetal growth retardation (SGA)) or medical conditions which may effect the management of the delivery).* a. Yes b. No (if No specify reason ie. Twins, pre-eclampsia) : …………………………………………………………………………………………
	"Bologna Score"

A	Start of labour (encircle one alternative)?
	
	_ Admitted in spontaneous labour
	  Elective caesarean section
	  Induction of labour
	⁻ Other, specify the reason………………………………………………

B	Was the woman assisted by a (encircle one alternative)?
	
	  Midwife
	⁻ Student midwife
	_ Doctor
	_ Student doctor
	  Other, namely……………

C1	Was the woman accompanied by a partner/relative/or significant other?
	
	  Yes
	  No

C2	Was a partograph used to follow the birth progress?
	
	  Yes
	  No

C3	Was the birth carried out <u>without</u> augmentation (artificial stimulation of labour, artificial rupture of membranes, fundal pressure, vacuum extraction, or caesarean section)? ⁻ Yes _ No (if No please underline method/methods for augmentation in the sentence above)
C4	Did the woman give birth either; sitting, kneeling, on all fours, standing or in lateral position? ⁻ Yes No

Appendix 3A

C5	Was the child placed skin- to- skin for at least 30 min within one hour after delivery? Yes No, less than 30 minutes − No, not at all
D	Study specific items
10	Was an episiotomy performed? Yes − No
11	What was Apgar score at 5 min? ....
12	Was the mother well after birth? Yes No (please specify)...............................
13	Was the baby well after birth? − Yes No (please specify).................................
14	Was there a post partum bleeding exceeding 500 ml? Yes No
15	Do you judge this delivery as normal? − Yes − No, specify..
	Thank you for your cooperation

Appendix 3B

_____

Nom de l'hôpital/clinique....................N° d'identification.......

1.	L'âge de la femme (en années)......................
2.	La date de naissance de l'enfant (année/date/mois)........................
3.	Semaines de gestation (encerclez une possibilité de réponse) a. < 37 b. 37 – 41+6 c. ≥42

4.	Parité (encerclez une réponse)
	    a. Primigravide
	    b. Multigravide
	    c. Primigravide obstétrical (= caesarean avant)

5.	Habitudes tabagiques (encerclez une réponse)? a. Jamais b. 1-9 cigarettes/jour c.≥10 cigarettes/jour d. Autre tabac, specifiez................................
6.	Poids et taille au début de la grossesse ? a. Poids (en kilogrammes) .... b. Taille (en cm).................
7	Statut matrimonial (encerclez une réponse) a. Mariée/en cohabitation b. Célibataire c. Autre, specifiez...............................
8	Lors de l'admission dans l'unité de maternité, la femme était en travail actif ? (c.à.d au moins 2 de 3 critères suivants sont rencontrés: *contractions utérines régulières (au moins 2 contractions par 10 minutes), rupture spontanée des membranes ou col cevical dilaté de 3cm ou plus*) ⊓ Oui ⊔ Non
9.	A l'arrivée dans l'unité de maternité, la femme a été jugée à bas risqué? (c.à.d *37-41+6 semain+jours de gestation , avec une grossesse singleton, présentation céphalique du bébé, battements normaux du cœur fœtal (110-150 battements/min), contractions spontanées/rupture des membranes avec liquide amniotique clair, pression diastolique < 90mmHg, Accouchement avant: pas une section de césarienne, une naissance immobile antérieure, hémorragie > 1000 ml, rupture du sphincter anal, ou présence des risques obstétricaux (ex : présentation vicieuse: siège décomplété mode de fesse, croissance fœtale intra utérine retardée(SGA)) ou conditions médicales pouvant affecter la gestion de la livraison)* ⊔ Oui ⊢⊢ Non (et spécifier la raison. Ex : jumeaux, pré-éclampsie) ....

Appendix 3B

	"Score de Bologne"
A	Debut de travail (encerclez une réponse) ⊓ Admise en travail spontané ⊓ Césarienne programmèe ⊓ Stimulation (induction) du travail ⊓ Autre specifiez la raison.....................
B	La femme était assistée par (encerclez une réponse)? ⊓ Accoucheuse ⊓ Une accoucheuse stagiaire ⊓ Médecin ⊓ Médecin stagiaire ⊔ Autre, à savoir..........................
C1	La femme était-elle accompagnée par un partenaire, un parent ou autre pendant le travail/l'accouchement? ⊓ Oui ⊔ Non
C2	Un partogramme était-il utilisé pour suivre le progrès de l'accouchement ? ⊔ Oui ⊓ Non
C3	L'accouchement avait-il été conduit <u>sans</u> intervention (stimulation artificiel du travail, presse abdominale, artificielle rupture membrane, forceps, extraction par ventouse, ou césarienne)? ⊓ Oui ⊓ Non (si non, veuillez souligner la méthode/les méthodes d'intervention dans la phrase audessus)
C4	Est-ce que la femme donne naissance soit assise, à genoux, à quatre pattes, debout ou en position latérale gauche? ⊔ Oui ⊔ Non
C5	L'enfant avait-il été placé peau à peau pendant au moins 30 minutes à une heure après l'accouchement ? ⊔ Oui ⊓ Non, moins de 30 minutes ⊓ Non pas de tout

2

Appendix 3B

L'instrument Score Bologne et questions supplémentaires: 2009-10-10

D	Autres éléments spécifiques
10	A-t-on effectué une épisiotomie ? ⊔ Oui ⊔ Non
11	Quel était le score d'Apgar pour 5 minutes ? ………
12	La mère était-elle bien après accouchement ? ⊔ Oui ⊔ Non (spécifier)…………………………
13	Le bébé était-il bien après la naissance ? ⊔ Oui ⊔ Non (spécifier)……………………………..
14	Y a-t-il eu une hémorragie post-partum supérieure à 500 ml? ⊓ Oui ⊓ Non
15	Jugez-vous cet accouchement normal? ⊓ Oui ⊔ Non, specifiez………………………………………………………
	Merci de votre cooperation

Appendix 4

Figur 1. Discussion about the study with the doctor in charge of Panzi general hospital Dr.Denis Mukwege

Figur 2. Midwives and nurses at Panzi General hospital.

Figur 3. We together with our local contact person Nzigire Esperence

Figur 4. The staff at Panzi General Hospital at our last day.

Figur 5. We at the Chahi Centre Hospitalièré.

Figur 6. Our interpreter Michel Smith and the Public Health Manager Florent Mbele.

Figur 7. Helena listening at the heartbeats of a baby

Figur 8. The Staff at Chahi Centre Hospitalièré at our last day.