

East African Medical Journal Vol. 85 No. 6 June 2008

BIRTH PREPAREDNESS AMONG ANTENATAL CLIENTS

S.M. Mutiso, MBChB, MMed (Obs & Gynae), Voi District Hospital, P.O. Box 18, Voi, Kenya, Z. Qureshi, MBChB, MMed (Obs & Gynae), Senior Lecturer and J. Kinuthia, MBChB, MMed (Obs & Gynae), Honorary Lecturer, Department of Obstetrics and Gynaecology, College of Health Sciences, University of Nairobi, P.O. Box 19676-00202, Nairobi, Kenya

Request for reprints to: Dr. S.M. Mutiso, Voi District Hospital, P.O. Box 18, Voi, Kenya

BIRTH PREPAREDNESS AMONG ANTENATAL CLIENTS

S.M. MUTISO, Z. QURESHI and J. KINUTHIA

ABSTRACT

Objective: To evaluate birth preparedness and complication readiness among antenatal care clients.

Design: A descriptive cross-sectional study.

Setting: Antenatal care clinic at Kenyatta National Hospital, Nairobi, Kenya.

Subjects: Three hundred and ninety four women attending antenatal care at Kenyatta National hospital were interviewed using a pre-tested questionnaire between May 2006 and August 2006. Clients who were above 32 weeks gestation and had attended the clinic more than twice were recruited. Systematic sampling was used to select the study participants with every third client being interviewed.

Main outcome measures: Health education on birth preparedness, knowledge of danger signs, preparations for delivery and emergencies.

Results: Over 60% of the respondents were counselled by health workers on various elements of birth preparedness. Eighty seven point three per cent of the respondents were aware of their expected date of delivery, 84.3% had set aside funds for transport to hospital during labour while 62.9% had funds for emergencies. Sixty seven per cent of the respondents knew at least one danger sign in pregnancy while only 6.9% knew of three or more danger signs. One hundred and nine per cent of the respondents did not have a clear plan of what to do in case of an obstetric emergency. Level of education positively influenced birth preparedness.

Conclusions: Education and counselling on different aspects of birth preparedness was not provided to all clients. Respondents knowledge of danger signs in pregnancy was low. Many respondents did not know about birth preparedness and had no plans for emergencies.

INTRODUCTION

Maternal mortality is a serious public health problem in Kenya. It is estimated that there are 414 maternal deaths per 100,000 live births in Kenya (1). This ratio is very high compared to a ratio of 11 in the United Kingdom per 100,000 live births (2). The main causes of maternal mortality are haemorrhage, infections, unsafe abortion, hypertensive diseases and obstructed labour (2). The Global safe motherhood initiative was launched in 1987 in Nairobi with a goal to reduce the maternal mortality by 50% by

the year 2000. Many interventions were put in place such as training of traditional birth attendants and risk screening during antenatal care (3). Ten years later, use of skilled birth attendants and emergency obstetric care were found to be the most critical interventions to reduce maternal deaths (4).

A skilled attendant refers to an accredited health professional such as a midwife, doctor or nurse who has been educated and trained to proficiency in the skills needed to manage normal pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral

of complications in women and newborns (5). Unfortunately, uptake of skilled care is low even in settings where services are available. In Kenya, the level of skilled attended deliveries in 2003 was 41% (1). Lack of skilled attendance at birth is a likely contributor to the high maternal mortality in Kenya.

Maternal deaths are thought to occur due to three delays: delay in deciding to seek appropriate care; delay in reaching an appropriate health facility; and delay in receiving adequate emergency care once at a facility (2). These delays may be reduced if pregnant women are prepared for birth and complications.

Birth preparedness and complication readiness is a safe motherhood strategy whose objective is to promote the timely use of skilled maternal and neonatal care during childbirth or obstetric emergencies by reducing delays at the first, second and third levels (4). It entails making plans prior to birth to ensure that a pregnant woman is prepared for normal birth and complications. Decisions are made and documented on such issues as desired place for birth, the preferred skilled birth attendant, items required for birth, birth companion, getting a compatible blood donor and arranging in advance for transport. Other elements of birth preparedness include knowledge of expected date of delivery, signs of labour, HIV testing, mobilising resources to pay for services, arranging for someone to take care of the family during delivery, importance of postnatal care, importance of exclusive breastfeeding and contraception (4).

Birth plan should be discussed on the first visit, reviewed in subsequent visits and finalised by 32 weeks (6). Birth preparedness and complication readiness improves utilisation of skilled care as demonstrated in Western Kenya (7) and Uganda (8). Cost of care and transport which are barriers in accessing skilled care (4) are addressed in birth preparedness.

Approximately 15% of pregnant women develop life-threatening complications hence need for emergency obstetric care. These complications are unpredictable and may progress rapidly to a fatal outcome (9). Knowledge of danger signs of obstetric emergencies and appreciation of the need for rapid and appropriate response when emergencies occur may reduce delay in decision making and in reaching health facilities. Danger signs in pregnancy are

vaginal bleeding, severe headache, severe vomiting, swelling of hands and face, difficulty in breathing, fits, fever, reduction or absent foetal movement and drainage of liquor (10).

One of the key roles of antenatal care is to provide health education on danger signs of pregnancy and delivery, preparation of a birth plan and to encourage delivery under a skilled attendant. World Health Organisation (WHO) and Ministry of Health Kenya now recommends that pregnant women should receive focused antenatal care in which birth preparedness and complication readiness is a key component (11,12). This study was undertaken to assess the aspect of birth preparedness and complication readiness among antenatal clients at Kenyatta National Hospital.

MATERIALS AND METHODS

This was a descriptive cross-sectional study carried out among antenatal care clients at Kenyatta National Hospital antenatal care clinic. The monthly workload in this clinic is about 720 clients. Clients who were 32 weeks gestation or more and had attended the antenatal clinic at least twice were included. The sample size was 394.

Systematic sampling was used to choose the study participants. Every third client was interviewed. The first client was chosen randomly between one and the sampling interval i.e. the first person to come and the third person. In case a selected participant declined, the next one was interviewed.

An exit interview was conducted using a pretested structured questionnaire. The questionnaire covered; socio-demographic characteristics, health education about birth preparedness, knowledge of danger signs, birth and complication readiness.

Each questionnaire was edited after completion to ensure that it was filled correctly. The data was coded, entered into a computer, cleaned and analysed using SPSS statistical software. Qualitative component was analysed separately.

RESULTS

A total of three hundred and ninety four women were interviewed. The mean age was 28.4 years, with a range of 15-42 years. Elderly gravidae (35 years and above) were 11.6% while teenagers were

0.8%. All the respondents had formal education with 49.7% having attained secondary education. Most (91.7%) of the respondents were married. Majority (79.2%) of the respondents lived in Nairobi province. Only 41.1% of the respondents were employed.

Primigravidae constituted 32.5% of the respondents while grand multipara accounted for only 2%. Only 21.8% of the respondents initiated antenatal clinic attendance in the first trimester, 74.1% during the second trimester and the remainder (4.1%) during third trimester.

Table 1

Socio-demographic characteristics of the respondents (n = 394)

Characteristic	No.	(%)
Age in years		
15-19	3	0.8
20-24	88	22.3
25-29	147	37.3
30-34	110	27.9
>35	46	11.6
Education		
Primary	50	12.7
Secondary	196	49.7
College	133	33.8
University	15	3.8
Marital status		
Married	361	91.6
Single	31	7.9
Separated / divorced	1	0.3
Widowed	1	0.3
Residence		
Nairobi	312	79.2
Out of Nairobi	82	20.8
Employment		
Yes	162	41.1
No	232	58.9
Spouse employment		
Yes	279	77.3
No	82	22.7

Table 2
Information provided to respondents by health workers on birth preparedness (n = 394)

Variable	No.	(%)
Danger signs in pregnancy		
Yes	284	72.1
No	110	27.9
Signs of labour		
Yes	277	70.3
No	117	29.3
Importance of hospital delivery		
Yes	336	85.3
No	58	14.7
Advance transport arrangements to hospital		
Yes	240	60.8
No	154	39.2
Need for blood donor		
Yes	166	42.1
No	228	57.9
Need to obtain HIV test		
Yes	380	96.4
No	14	3.6
Importance of exclusive breastfeeding		
Yes	282	71.6
No	112	28.4
Importance of postnatal care		
Yes	240	60.9
No	154	39.1
Importance of family planning		
Yes	220	55.8
No	174	44.2

Twenty seven point nine per cent of the study respondents were not informed about danger signs in pregnancy, 29.3% were not informed about signs of labour while 14.7% were not informed about the importance of hospital delivery. In addition 39.2% of the respondents were not informed of the need to make advance transport arrangements while 57.9% were not informed the need to identify a

blood donor. Most (96.4%) of the respondents were informed about the importance of obtaining an HIV test. At least 28.4% of the respondents were not counselled about the importance of exclusive breastfeeding while in 39.1% the importance of postnatal care was not explained. A significant 44.2% of the respondents were not advised about the need for postpartum contraception.

Thirteen point seven per cent of the respondents did not know their expected date of delivery while 3.8% were not aware that labour may start before the expected date of delivery. More respondents (84.3%) had identified mode of transport to hospital during the day than at night (79.2%). Among the

respondents, 15.6% had not set aside funds to cater for transport to the hospital during labour while 34.8% had not identified a birth companion. Majority of the respondents (71.3%) had not identified a blood donor (Table 3).

Table 3

Birth planning among respondents (n = 394)

Variable	No.	(%)
Awareness of expected date of delivery		
Yes	344	87.3
No	50	13.7
Awareness that labour may start before due date		
Yes	379	96.2
No	15	3.9
Identification of the mode of transport to hospital during the day		
Yes	332	84.3
No	62	15.7
Identification of the mode of transport to use to hospital at night		
Yes	312	79.2
No	82	20.8
Availability of funds for transport to hospital during labour		
Yes	332	84.3
No	62	15.7
Already identified a birth companion		
Yes	257	65.2
No	137	34.8
Already identified a blood donor		
Yes	113	28.7
No	281	71.3

Haemorrhage was the most known danger sign in pregnancy mentioned by 64.2% of the respondents, followed by reduced foetal movements which was mentioned by 20.6% of the respondents. Only 10.9% of the respondents mentioned drainage of liquor. Severe headache, blurred vision, severe vomiting, swelling of hands and face were known by very few respondents. None of the respondents mentioned fever, convulsions and difficulties in breathing. Sixty seven per cent of respondents knew at least one danger sign in pregnancy while only 6.9% knew of three or more danger signs (Table 4).

Forty three (10.9%) of the respondents did not have a clear plan of what to do in case of an obstetric emergency. A significant 44.9% of the respondents had not made prior transport arrangements to get to hospital in case of an emergency while 37.1% had not set aside funds for emergency purposes.

Women with higher level of education were more likely to know at least one danger sign than those with low education with a p-value of <0.001. Marital status, parity and number of antenatal visits did not influence knowledge of danger signs.

Table 4

Knowledge of danger signs during pregnancy among study group (n = 394)

Variable	Response	No.	(%)
Haemorrhage	Yes	253	64.2
	No	141	35.8
Reduced / loss of foetal movement	Yes	81	20.6
	No	313	79.4
Drainage of liquor	Yes	43	10.9
	No	351	89.1
Swelling of hands, face, entire body	Yes	9	2.3
	No	385	97.7
Severe headache	Yes	6	1.5
	No	388	98.5
Blurred vision	Yes	1	0.3
	No	393	99.7
Severe vomiting	Yes	1	0.3
	No	393	99.7
Fever	No	394	100
Convulsions	No	394	100
Difficult in breathing	No	394	100
Awareness of at least one danger sign	Yes	264	67.0
	No	130	33.0
Awareness of two danger signs	Yes	76	19.3
	No	318	80.7
Awareness of more than three danger signs	Yes	27	6.9
	No	367	93.1

DISCUSSION

Early initiation of antenatal care, preferably in the first trimester is crucial to allow early detection and management of complications, detection of existing diseases and treatment, promotion of health and prevention of disease and birth preparedness (2,6). In this study, only 21.8% of the respondents had commenced antenatal care during the first trimester. This figure is higher than the national figure of 11% (1).

One of the most important functions of antenatal care is to offer the woman advice and information about birth preparedness, danger signs of obstetric complication and emergency preparedness. Birth preparedness is a fundamental component of antenatal care whose aim is to reduce any unnecessary delays to seek emergency obstetric care hence improve maternal foetal outcomes (13). All antenatal clients must be empowered with information about danger signs in pregnancy, child birth and in the post partum period. It is therefore worrying that 28% of the respondents were not informed about danger signs in pregnancy.

Onset of labour indicates a need to activate the birth plan and contact a skilled provider hence all women must be informed about signs of labour so that they can go to a health facility for delivery. In this study 29.3% of the respondents were not given information on signs of labour.

The safest place to give birth is in the hospital where both skilled birth attendant and emergency obstetric care are available (9). Antenatal care is a potentially effective instrument to ensure more facility based deliveries (13). In this study 14.7% of the respondents were not informed about the importance of hospital delivery.

HIV counselling and testing is important because it enables women know their HIV status. Women who test negative are given information and support to remain uninfected. A positive HIV test allows the woman to receive additional care to keep her health, prevent transmission to her baby and partner and help her make decisions about the future (13). In this study 96.4% of the respondents were informed about the need for HIV testing. This could be a reflection of the emphasis put on prevention of mother-to-child transmission (PMCT) in the hospital and the country as a whole.

Advance transport arrangements reduce delay in reaching the health facility. It saves time that

would otherwise be used to arrange for transport and especially in emergency situations. Advance transport plan should enable a couple know what transport is available at different times of the day, how much it will cost, contact persons or address, alternative mode of transport and more important save money to meet the costs. Unfortunately, 39.2% of the respondents were not told about advance transport preparations to the preferred place of birth.

All mothers should be made aware of the benefits of breastfeeding during the antenatal period. Breast feeding is an unequalled way of providing ideal food for the healthy growth and development of the infant. Mothers counselled on breastfeeding during the antenatal period have been shown to be highly motivated to breastfeed (14). Early and exclusive breastfeeding for the first six months is recommended by WHO (14). However few women in Kenya exclusively breastfeed for six months as shown in 2003 KDHS where less than one third of women exclusively breastfed (1). It is worrying that, 29.4% of the respondents were not counselled on the importance of exclusive breastfeeding.

Since 67% of maternal deaths occur in the postpartum period, hence postnatal care is vital for detection and treatment of life threatening postpartum complications. It also provides an opportunity for further health education on breastfeeding, family planning, maternal nutrition, baby care, immunisation of the infant and HIV testing if that opportunity was missed antenatally (15). In this study 39.2% of the respondents were not informed about importance of postnatal clinic.

A woman's fertility will likely return by the end of postpartum period if she is not breastfeeding exclusively (6). Counselling on family planning is important to allow appropriate birth spacing for both maternal and child health benefit. Discussion concerning postpartum contraception should begin during the first antenatal clinic as promotion of family planning during the antenatal period has a positive impact on contraceptive use after birth (16). A significant 44.2% of the respondents in this study were not counselled about family planning.

Expected date of childbirth gives an approximate time when delivery may occur hence enable women make necessary birth preparations early (6). Knowledge of expected date of childbirth was high (87.3%) in this study. This could be attributed to

eagerness from the women themselves to know when they will be due. It is important for pregnant women to know that labour may commence before due date hence finalise their birth plans early to avoid been caught unawares. It's encouraging that 96.2% of the respondents knew that labour may commence earlier than the expected date of childbirth.

Identification of an appropriate compatible blood donor and their availability in case of an emergency may be life saving especially in facilities where blood is scarce. Luckily, shortage of blood for emergencies is rare at Kenyatta National Hospital. However, at times relatives and friends are requested to donate blood for a patient. Prior donor identification may be crucial in such situations. In this study only 28.7% of the respondents had identified a blood donor.

Approximately 25% of maternal deaths occur during pregnancy (4). Knowledge of the danger signs of obstetric complications is an essential step in recognition of complications and enables one take appropriate action to access emergency care (2). Although 67% of respondents knew at least one danger sign, only 6.7% knew of three or more danger signs. All respondents completely lacked information on some of the danger signs such as fever, convulsions and difficulty in breathing. Though 72% of the respondents indicated that they were informed about danger signs, this was not reflected when they were asked to identify them.

Vaginal bleeding which is a danger sign of antepartum haemorrhage was not known by 35.8% of the respondents. This is worrying given that haemorrhage is the leading cause of maternal mortality worldwide responsible for 33% of all maternal deaths (17). Equally worrying was the inability of the respondents to identify danger signs which indicate severe pre-eclampsia and eclampsia such as severe headache, blurred vision, swelling of body and fits.

It's important to inform antenatal mothers where they can seek emergency obstetric care when complication(s) occur in order to avoid unnecessary delays. Majority (89.1%) of the respondents in this study would seek urgent medical attention in case of an emergency as opposed to 10.9% who would either pray or did not know what to do.

Many obstetric complications are unpredictable and can arise suddenly without warning (13). Having a plan for emergencies like what transport to use during the day and at night, how much it would

cost and availability of funds can help reduce delays in getting to hospital. Every pregnant woman should have a written plan for emergencies.

In this study, 55% of the respondents had made advance arrangements for transport in case of an emergency while 63% had some funds available to cater for an emergency. Unavailability of funds for emergencies may be due to poverty or ignorance (4). Ignorance could have been the reason in our study group as a significant number were employed or had working spouses.

In conclusion, education and counselling on different aspects of birth preparedness was not given to all respondents. The respondents' knowledge of danger signs was low. Many respondents did not know about birth preparedness. A large proportion of clients were not prepared for obstetric emergencies. Antenatal care should place emphasis on birth preparedness and complication readiness to improve access to skilled and emergency obstetric care which have been shown to be critical in reducing maternal and/or perinatal mortality and morbidity.

ACKNOWLEDGEMENTS

To Kenyatta National Hospital for permission to undertake this study. In addition we thank all the staff in the antenatal clinic for their assistance and cooperation during data collection

REFERENCES

1. The Kenya Demographic and Health Survey. National Council for Population and Development, Central Bureau of Statistics, Ministry of Planning. Ministry of Health and Macro International. 2003.
2. World Health Organization: Mother-baby package: Implementing safe motherhood in countries. Document WHO/FHE/MSM/941.
3. Preventing the tragedy of maternal deaths. A report of the International Safe Motherhood Conference, Nairobi, Kenya, 1987.
4. Maternal and neonatal health program. Birth preparedness and complication readiness: A matrix of shared responsibility. 2003. <http://www.mnh.jhpiego.org/resources>.
5. World Health Organization. Care in normal birth: A practical guide. Report of a Technical Working Group. Document WHO/FRH/MSM/96.24.

6. Barbara, K. and Gomez, P. Basic maternal and newborn care: A guide for skilled providers. *JPIEGO*. 2004.
7. Ministry of Health. University of Nairobi and population council. Safe motherhood demonstration project, Western province. Final report. Population council, December 2004.
8. Mulogo, E.M., Witte, K., Bajunire, F., *et al.* Birth plans and health facility based delivery in rural Uganda. *East Afr. Med. J.* 2006; **83**: 74-83.
9. Rogo, K. and Aloo, O. Maternal mortality in Kenya: The state of health facilities in a rural district. *East Afr. Med. J.* 2001; **78**: 468-472.
10. United Nations Children's Fund. Programming for Safe Motherhood: Guidelines for Maternal and Neonatal Survival. October 1999.
11. World Health Organization. Antenatal Care Randomised Trial: Manual for the Implementation of New Model; WHO, Geneva. 2002. WHO/RHR/01.30.
12. Ministry of Health. Division of Reproductive Health, Division of Malaria Control and JPIEGO. Focused antenatal care and malaria in pregnancy: Orientation package, Ministry of Health, Nairobi, Kenya, 2002.
13. World Health Organization. Birth and emergency preparedness in antenatal care. Standards for maternal and neonatal care. WHO. www.who.int/making-pregnancy-safer/publications/.
14. World Health Organization: Protecting, promoting and supporting breastfeeding. The special role of maternity services (a joint WHO/UNICEF statement) Geneva. WHO. 1989.
15. Li, X.F. The postpartum period: the key to maternal mortality. *Int. J. Gyn. Obstet.* 1996; **54**: 1-10.
16. The World Health Report. Make every mother and child count, 2005. <http://www.who/world-health-report/chapter-3.htm>.
17. Khan, S.K., Wojdyla, D., Say, L., *et al.* WHO analysis of causes of maternal death: A systematic review. *Lancet.* 2006; **367**: 1066-1074.