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RAPID ASSESSMENT OF PARTOGRAPH UTILISATION IN SELECTED MATERNITY UNITS IN KENYA

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ABSTRACT

Background: **Prolonged labour causes maternal and perinatal morbidity and mortality. Its sequela include obstructed labour, uterine rupture, maternal exhaustion, postpartum haemorrhage, puerperal sepsis, obstetric fistula, stillbirths, birth asphyxia and neonatal sepsis. These complications can be reduced by using the partograph to assess the progress of labour. The Ministry of Health, Kenya has adopted this tool for labour management in the country and the standardised partograph is recommended for use in all delivery units.**

Objective: **To determine the utilisation of the partograph in the management of labour in selected health facilities in Kenya.**

Design: **A descriptive cross sectional study.**

Setting: **Nine health facilities -ranging from a tertiary hospital to health centre, including public private and faith based facilities in four provinces in Kenya.**

Results: **All facilities apart from Pumwani Maternity Hospital and one health centre were using the partograph. The correct use was low, the knowledge on the use of the tool was average and there was minimal formal training being provided. Staff shortage was listed as the most common cause of not using the tool. Contractions were recorded 30-80%, foetal heart rate 53-90% and cervical dilatation 70-97%. Documentation of state of the liquor, moulding and descent as well as maternal parameters such as pulse, and blood pressure and urinalysis were minimally recorded. Supplies for monitoring labour such as fetoscopes and blood pressure machines were in short supply and sometimes not functional. Overall, the poor usage was contributed to staff shortages, lack of knowledge especially on interpretation of findings, negative attitudes, conflict between providers as to their roles in filling the partograph, and senior staff themselves not acting as role models with regards to the use, advocacy and implementation of the partograph.**

Conclusion: **The partograph was available in most units. However, accurate recording of parameters to monitor the foetus, the mother and progress of labour as recommended was mostly not done. Shortage of staff, lack of knowledge, lack of team work, lack of supplies and negative attitude among healthcare providers were some of the obstacles noted to hamper partograph use.**

INTRODUCTION

Each year 99% of the estimated 529,000 maternal deaths and 98% of the estimated 5.7 million perinatal deaths occur in the developing world (1).The Kenya Demographic and Health Survey 2003 estimated there are 414 maternal deaths per 100,000 live births resulting mainly from haemorrhage, hypertensive diseases, obstructed labour, sepsis and unsafe abortion (2) .

One of the pillars of safe motherhood as defined by the Ministry of Health Kenya is to provide a safe and clean delivery and this can be achieved best by using an evidence based tool the partograph, during the intrapartum period. The partograph is a graphical tool for monitoring of the progress of labour as well as maternal and foetal well being which has been in use since 1970 and serves as an "Early warning system" and assists in early decision making for intervention or transfer (3). In 1995 the Ministry of Health Kenya

introduced as a policy a modified partograph for use in managing labour.

A WHO multicentre study involving over 35,000 women showed that the partograph is beneficial in reducing prolonged labour, augmented labour, emergency Caesarian section (c/s) and intrapartum still births (4,5). A local study by Wasike (6) noted similar findings.

Training is proven to increase use of the partograph as was demonstrated by the Safe motherhood Demonstration Project (SMDP) in Western Kenya 2000-01 where the partograph was used in 11% patients before SMDP and 85% during SMDP (7).

In Kenya inspite of standardisation of the partograph and its adoption, its use countrywide has been very limited. This study was conducted to assess utilisation of the partograph in labour management in selected health facilities in Kenya.

MATERIALS AND METHODS

This was a descriptive cross-sectional study using both qualitative and quantitative methodologies. A rapid assessment on the utilisation of the partograph was carried out in 2002 at nine health facilities in four provinces. The facilities were conveniently selected due to cost constraints covering a cross section of public, private, faith based and ranging from health centre to national referral hospital with a view to provide insight in to partograph use by different providers and facilities.

The coverage of facility was as follows:- Kenyatta National Hospital (KNH), Pumwani Maternity Hospital (Public hospital), Avenue Hospital (private), District Hospitals Kiambu, Machakos and Kajiado, Kikuyu Mission Hospital, Masii and Langata Health Centres.

Methods used were :- a checklist for observations of use of partographs during labour and delivery, review of obstetric records of the previous three months, in-depth interviews with Medical superintendents, Matron in charge, Obstetrician / gynaecologist, Medical officer, midwives and facility inventory.

In each facility thirty files were randomly selected from among those who had delivered in the previous three months and analysed for the partograph recordings. The researchers / assistants also observed the entire process of labour and delivery and the actual use of the partograph by midwives during the study.

An exit interview of five randomly selected mothers who had delivered in each unit was conducted to find out about their recollection of the monitoring they received during labour. The mothers included were those in labour at time of site visit, mothers who had delivered normally within the previous six hours of the visit and consented to participate in the study.

The number of files analysed and mothers interviewed was based on convenience sampling for rapid assessment. The pilot study to finalise the data collecting tools was conducted at Thika District Hospital.

Ethical considerations: Ethical clearance was obtained from the Kenyatta National Hospital Ethics and Scientific Committee. Permission to do the study was obtained from the Ministry of Health for its facilities and the individual private and faith based institutions.

RESULTS

Table 1
Average monthly delivery statistics in various institutions

Type of facility	Kenyatta National Hospital (KNH)	Pumwani Maternity Hospital (PMH)	Kiambu District Hospital	Machakos District Hospital	Kajiado District Hospital	Kikuyu Mission Hospital	Avenue Hospital	Langata Health Centre	Masii Health Centre
Province									
Nairobi	√	√					√	√	
Eastern				√					√
Central			√			√			
Rift Valley					√				
*Monthly Admissions	455	1946	362	334	66	44	70	7	1
Total deliveries /month	488	1800	377	290	48	40	65	7	1
SVDs	288	1632	233	205	43	28	45	7	1
C/S	154	225	27	78	5	11	18	0	0
%C/S	34.4	12.5	7.1	26.9	10.4	27.5	27.7	-	-

Continuous Table 1									
Vacuum	2	0	1	0	0	0	3	-	-
Vaginal breech	5	4	5	7	1	0	0	0	0
MSB	10	14	2	4	1	0	1	0	0
FSB	30	18	8	5	3	1	1	0	0
Maternal deaths	3	3	1	1	1	0	0	0	0
Ruptured uterus	2	4	0	1	0	0	0	0	0
APH	7	n/a	1	1	0	0	0	0	0
PPH	5	n/a	0	1	0	1	0	0	0
Hypertension	24	n/a	3	1	2	2	2	0	0
Sepsis	7	0	n/a	0	0	0	0	0	0
Admission to NewBorn Unit	185	461	23	n/a	3	n/a	1	0	0

*Delivery statistics covering the previous three months which were used to calculate an average for one month n/a=no records available, SVD's= spontaneous vertex delivery, C/S =Caesarean section, FSB =Fresh Still Birth, MSB= Macerated Still Birth, APH =Ante Partum Haemorrhage, PPH =Post Partum Haemorrhage

The average monthly admission and delivery statistics in the nine study facilities are given in Table 1.

All units had admission and delivery registers but many other registers to record various activities were not consistent. Also, it was not possible to obtain information on maternal morbidity and medical disorders. From the calculations it was evident that date entry was not very accurate since many of the figures could not be verified such as numbers of admissions being less than deliveries and the numbers of total deliveries also not adding up to 100%.

Table 2 shows skilled care attendants in the different health facilities at the time of study. Kenyatta National Hospital had the largest number of consultants, two consultants and four post graduate residents on duty to cover a 24 hour period while the rest of the hospitals had zero to three consultants and one to three medical officers.

Pumwani Maternity Hospital had 15 medical officers who were mostly locum doctors and according to the Medical Superintendent did not show much interest in the partograph. In all other hospitals medical officers covered all departments of the hospital at any given time and only one would be on duty to cover labour ward.

The average number of shifts was four with the smallest number of workers in the night shift usually 6.30 pm to 7.30 am. The PMH had an afternoon shift from 2 pm to 8.30 pm which on some days would have only three midwives on duty to man a 49 bed labour ward.

Table 2

Manpower in maternity wards and working shifts

Type of facility	Kenyatta National Hospital (KNH)	Pumwani Maternity Hospital (PMH)	Kiambu District Hospital	Machakos District Hospital	Kajiado District Hospital	Kikuyu Mission Hospital	Avenue Hospital	Langata Health Centre	Masii Health Centre
Consultants	2*	3	2	2	0	1	1	0	0
Registrars	4*	-	-	-	-	-	-	-	-
Intern / COs	2*	-	1	3	3	1	1	1	0
Midwives/Nurses	40	47	24	7	14	13	6	6	8
No. of midwives/shift (average)	6	7	3	2	4	3	3	?	?
No. of shifts	4	3	4	4	4	4	4	3	2
Mothers under observation	10	37	2	3	1	0	1	0	0
Ratio mother: provider**	5:3	5: 1							

* to cover a period of 24 hours

** only where staff were specific for labour ward

Table 3
Availability and use of partograph at the maternity units

Type of facility	Kenyatta National Hospital (KNH)	Pumwani Maternity Hospital (PMH)	Kiambu District Hospital	Machakos District Hospital	Kajiado District Hospital	Kikuyu Mission Hospital	Avenue Hospital	Langata Health Centre	Masii Health Centre
Provider ever heard of it	yes	yes	yes	yes	yes	yes	yes	yes	yes
Ever-used	yes	yes/no	yes	yes	yes	yes	yes	no	yes
Useful	yes	yes	yes	yes	yes	yes	yes	yes/no	yes
Ever-been trained	yes	no	yes	yes	yes/no	yes	yes/no	no	no
availability	yes	no	yes	yes	yes	yes	yes	no	no
Tested Competence*	good	**n/a	average	good	average	average	good	none	none
Need for training	yes	yes	yes	yes	yes	yes	yes	yes	yes

* Matron's in-charge of obstetrics and gynaecology
**not available for interview

The providers were interviewed to find out if they were aware of the tool, use, usefulness, training, availability, competence and need for training. As shown in the Table 3 all providers interviewed had heard of the partograph and most had ever used it except a few staff at PMH and at the Langata Health Centre. At the time PMH was using case records to record observations and they were in the process of introducing the use of the partograph. The senior nurses' knowledge of the partograph was better than for those who were working in the labour wards as seen during the observational exercise.

Those who were using the tool -used their pre-service training while others had been informally updated by their colleagues. During the indepth interviews we learnt that the older senior midwives did not feel comfortable learning from their junior younger colleagues. It was only at Kajiado District Hospital where the staff had undergone training by a Non Governmental Organization. Midwives expressed the need to have doctors and midwives trained and the need for the doctors to use the tool for decision making. Most staff at the district hospitals stated their frustration when they called in the doctors to review patients and noted that the doctors were not taking note of the recording on the partographs to make decisions about subsequent labour management, which they felt negated the entire reason for the use of this tool. Also there was conflict between the providers as to their roles in plotting and interpretation of the partograph to quote from an intern "this job is for the nurses and not doctors".

The fine print on the available partograph from the Ministry of Health was a deterrent to the older midwives who could not easily fill out the values if they did not have their reading glasses on.

During interview with the staff it was noted there was no regular audit of the partograph. This instrument was reviewed only when there was a bad outcome such as maternal or perinatal mortality.

Where the tool was available it was being printed/photocopied by the hospital authorities and was an integral part of the hospital file which the patients would pay for on admission, about US $1.3 (100 Kenya shillings) but at no time would a patient be denied this even when unable to pay.

Table 4
Percentage of partograph parameters recorded during labour monitoring

Type of facility	Kenyatta National Hospital (KNH)	*Pumwani Maternity Hospital (PMH)	Kiambu District Hospital	Machakos District Hospital	Kajiado District Hospital	Kikuyu Mission Hospital	Avenue Hospital	Langata Health Centre	**Masii Health Centre
Admission details ***	90	100	27	30	70	37	37	100	
Foetal heart rate	90	90	57	80	77	87	80	53	
Liquor	80	40	23	13	33	20	26	3	
Moulding	43	0	10	7	13	13	0	0	
Cervical dilation	97	90	70	83	73	70	90	90	
Descent of head	67	50	63	63	70	53	90	7	
Contractions	67	60	53	77	67	77	93	30	
Pulse	63	0	3	43	7	43	77	73	
Blood pressure	77	0	0	27	10	33	77	80	
Urine	13	0	0	10	0	10	0	0	
Summary ***	97	97	0	77	70	90	83	93	

*Extracted from clinical notes but not the partographs
** No deliveries conducted in this facility
*** Completely filled

Thirty files were randomly selected from each facility among those who had delivered in the previous three months and analysed for the partograph recordings and the findings are shown in Table 4. Pumwani Maternity Hospital did not have partograph but they recorded information in the patient's files -where the information was obtained from. Other units which used the partograph had more information in the patient's notes which was not reflected on the partograph.

Most units had detailed admission records and the foetal heart rate recordings. Those who did not have admission details on the partographs had the details in the files within which the partograph was filed. The various parameters were recorded at least once on the partograph and not as per the frequency recommended for the optimal use of the partograph which is half hourly. The liquor state and moulding status at vaginal examination were minimally noted at facilities other than Kenyatta National Hospital. The contractions were noted in between 30-80 % of times and the descent of the head was documented in just over 50% of records. The maternal pulse and blood pressure, was not recorded at all in some facilities. It's important to note that the parameters were not always documented according to accepted frequency.

During the observational exercise the partograph was not used to provide information to the staff taking over the patient care at hand over time when one's working shift ended.

Mothers were interviewed about their recollection of the monitoring during labour and reported having been palpated for uterine contractions most but not half hourly with occasional vaginal examinations but almost no monitoring of blood pressure, temperature, pulse rate and urinalysis. Overall they were satisfied with the care provided.

The supplies required to aid complete and accurate documentation of the partograph are gloves, disinfectants for performing vaginal examinations, foetoscope, thermometer, blood pressure apparatus, and urinalysis test strips. In all public hospitals gloves were available at most times however the foetoscopes were not adequate, and thermometers, blood pressure apparatus were faulty or missing in some units. In almost all units, urinalysis could only be done in the laboratory. All units had high level disinfected or sterilised delivery kits/instruments for perineal repair and the very basic apparatus for neonatal and adult resuscitation was available. Although vacuum extraction sets were available in most units their use was negligible.

DISCUSSION

The partograph is a tool that if used accurately and consistently for the 41% of women utilising the health facilities then we can make progress towards reduction of maternal and perinatal morbidity and mortality which occurs from prolonged labour, cephalopelvic disproportion, obstructed labour and neonatal asphyxia.

Results of this study show that midwives / nurses provide most of the skilled care during delivery. This is in line with findings of Kenya Demographic Health Survey (KDHS) 2003 where midwives / nurses provided most of the care in supervised deliveries (2). Safe motherhood interventions including use of partograph must target this group.

Large numbers of deliveries were taking place in the institutions surveyed. However morbidity and mortality could not be assessed properly due to poor record keeping at most of these facilities. Caesarean deliveries ranged from 17 to 34% (keeping in mind the inaccuracy of the records) but use of vacuum was almost non existent despite equipment being present in all major facilities making one wonder if some Caesarean section's were being performed where vacuum extraction could have sufficed. The under utilisation of vacuum was possibly due to lack of skills and negative attitude. However the reasons for non use were not assessed in this study. Also the number of midwives in the hospitals taking care of very large numbers of women was very small giving a ratio of one provider to five patients which makes use of the partograhs almost very challenging.

In our study the knowledge was good for healthcare providers at Kenyatta National Hospital, Avenue Hospital and Kajiado Hospital. For the rest it was average to nil. Kenyatta National Hospital is a teaching institution hence good knowledge was expected there and Kajiado Hospital had undergone training -it was commendable that the staff at Avenue Hospital had kept abreast with the appropriate knowledge. The staff in all facilities wished to be updated on use of the partograph. A study conducted to look at the knowledge, attitude and practice related to the use of the partograph among personnel involved in management of labour in Nyandarua District Hospital in Kenya found that whereas the personnel had favourable attitudes towards the partograph, their knowledge was poor (8).

In our study data entry on the partograph was good for the admission of patient details. The parameters recorded well were the foetal heart rate, cervical dilatation, descent of the head, contractions and the summary of labour. Those least recorded were moulding, state of liquor, and the maternal parameters such as blood pressure, pulse rate and urine.

In this study documentation about moulding was poor in all facilities. Moulding is a diagnostic criterion for CPD especially if the head is high. Excessive moulding is one of the diagnostic criteria of obstructed labour but a point to note that the presence of caput may make appreciation of moulding difficult (3).

The state of liquor is important in monitoring the foetal status. Appearance or worsening meconium staining, scanty or absent liquor during artificial. rupture may indicate foetal hypoxia and need to expedite delivery. In cases of abruption placenta and rupture of uterus the liquor may be blood stained. The liquor may be foul smelling or pus like in chorioamnitis (3).The state of liquor was documented satisfactory on in Kenyatta National Hospital. The importance of this parameter needs to be emphasised.

The importance of urinalysis in monitoring maternal conditions needs to be reaffirmed. Blood pressure, maternal pulse was well recorded in Kenyatta National Hospital, Avenue Hospital and Langata Health Centre. Maternal monitoring helps in assessing the general condition and detect any problems with the mother.

Results of The Kenya Service Provision Assessment (KSPA) 2004 showed poor utilisation of the partograph in maternity units in Kenya with 39% of facilities offering delivery services having had blank partographs.Monitoring as per accepted frequency was as follows: Foetal heart monitoring and uterine contractions 20%, blood pressure 14% and pulse 8%. Overall all four parameters were only recorded in a dismal 5% of cases. Further only 17% hospitals and 10% maternities had documentation of all four critical practices (9). The findings also showed poor utilisation of the partograph in most of the study facilities. Completeness and utilisation of partograph in labour management in KNH was better than in other facilities studied most likely because the hospital serves as the main teaching hospital in Kenya for obstetricians, medical officers and nurses. The healthcare workers trained in this hospital are usually deployed all over the country facilitating knowledge and skills transfer to many parts of the country.

Shortage of staff was a constraint leading to inability to fill the partograph as required thus compromising effective labour monitoring. Other constraints noted in this study included lack of knowledge and skills and negative attitude among healthcare providers.

Most staff had not being trained on the partograph and felt that they would use it better if they were trained .Training can be achieved through updates and on job training. These two strategies have been shown to improve use and documentation of the partograph to monitor labour (7, 10).

All Medical Superintendents and obstetricians and medical officers' in charge of maternity units were very supportive of the partograph. This opportunity should be seized to implement utilisation of the partograph to monitor labour. This cadre of staff may also be involved in day to day monitoring on its use.

In conclusion, the partograph was available in most units. However accurate recording of parameters to monitor the foetus, the mother and progress of labour as recommended was mostly not done. Shortage of staff, lack of knowledge, lack of team work and negative attitude were some of the obstacles noted to hamper partograph use. We recommend the partograph should be available in all facilities conducting births and adequate supplies availed to ensure appropriate utilisation. There is need for continuous medical education and on job training of all the staff involved in labour management to increase their knowledge base on use of partograph. There is need for team work among midwives and doctors to use this tool to monitor labour and make appropriate decisions. There should be regular audit of the partograph and facilitative supervision to ensure facilities adhere to set standards of care. Staff shortage in delivery units need to be addressed to improve monitoring of labour.

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