AJM

RESEARCH

Low partograph completion in a public health facility in northern Uganda: a retrospective review of maternity records

Laillah Nassaka[1]

Samson Udho[2]

Author details can be found at the end of this article

Correspondence to:
Samson Udho; sudho@lirauni.ac.ug

Abstract

Background/Aims Low levels of partograph documentation and completion in Uganda by skilled health personnel is an ongoing problem. Completion of the partograph lowers the maternal mortality ratio by allowing for the early detection and management of childbirth complications, lowering the incidence of maternal death from preventable causes. However, there is a scarcity of recent studies focused on assessing partograph completion to the required standards. The aim of this study was to assess partograph documentation during monitoring of labour by skilled health personnel.

Methods A retrospective desk review of 400 partographs from women who laboured and gave birth at the Lira Regional Referral Hospital between 1 July and 31 December 2019 was conducted. A structured checklist was used to extract data on completion of the partograph.

Results Only 5% of the partographs were filled to the required standards. Average documentation of the parameters of a partograph to the required standards was 45.1% for fetal monitoring, 44.8% for labour progress, and 15.6% for maternal monitoring.

Conclusions Documentation of different parameters of the partograph by skilled health personnel in public health facilities in northern Uganda was generally low. The Ministry of Health should strengthen partograph audit exercises and support supervision of and in-service capacity development training for skilled health personnel in high-volume facilities on partograph documentation.

Key words: Completion; Documentation; Partograph; Retrospective; Review

Submitted: 12 July 2021; accepted following double-blind peer review: 9 August 2021

Background

The global maternal mortality ratio from preventable maternal causes is still high at 211 per 100000 live births (World Health Organization [WHO], 2019). It is estimated that 94% of all maternal deaths occur in low- and lower-middle-income countries. As of 2017, sub-Saharan African registered over 196 000 maternal deaths, making it the region with the highest maternal mortality rate (WHO, 2019). Uganda significantly contributes to high rates of maternal mortality in sub-Saharan Africa, with the maternal mortality ratio in the country standing at 336 per 100 000 live births (Uganda Bureau of Statistics, 2018).

Direct causes of maternal mortality include obstructed labour, haemorrhage, pre-eclampsia and eclampsia, unsafe abortions, infections and other childbirth complications (Say et al, 2014). Obstructed labour is estimated to account for 22% of obstetric complications and 9% of all maternal deaths in low- and middle-income countries (Bailey et al, 2017). Obstetric complications associated with obstructed labour include postpartum haemorrhage, stillbirth, sepsis, uterine rupture and fistula (Bailey et al, 2017; Ayenew, 2021).

The global target is to reduce the maternal mortality ratio to 70 per 100000 live births by 2030 (Hák et al, 2016). Meanwhile, no country is expected to have a maternal mortality ratio greater than 140 per 100000 from preventable causes by the end of 2030 (WHO, 2015). One of the multipronged strategies to end preventable maternal deaths is to address the causes of maternal mortality, including obstructed labour (WHO, 2015). The invention of the partograph was one innovation to tackle prolonged and obstructed labour (Hofmeyr et al, 2021). Globally, the partograph has been recognised and used as a labour monitoring tool

How to cite this article:
Nassaka L, Udho S. Low partograph completion in a public health facility in northern Uganda: a retrospective review of maternity records. African Journal of Midwifery and Women's Health. 2022. https://doi.org/10.12968/ajmw.2021.0043

for the early detection of prolonged and obstructed labour since 1994, based on the World Health Organization recommendation (Rosser, 1994). However, use of the partograph to inform clinical decisions regarding prolonged and obstructed labour remains erratic across settings (Mandiwa and Zamawe, 2017; Mukisa et al, 2019; Haile et al, 2020).

According to Bedada et al (2020), documentation of partographs to required standards during monitoring of labour remains poor. Reasons for low completion include healthcare professionals' attitude towards the use of the partograph, lack of knowledge about the partograph and lack of supervision (Ayenew and Zewdu, 2020). These gaps in documentation prevent the partograph from being used as intended to inform clinical decisions on prolonged or obstructed labour. Assessing partograph use across settings, especially in areas with high maternal mortality ratios, such as Uganda, is crucial in designing interventions to improve uptake of the tool. There is a scarcity of recent studies focused on assessing the documentation of different parameters within a partograph to the required standards (Mandiwa and Zamawe, 2017; Mukisa et al, 2019). Therefore, the purpose of this retrospective review was to assess partograph documentation to the required standards during monitoring of labour by skilled health personnel in the Lira Regional Referral Hospital, northern Uganda.

Methods

Study design

This was a retrospective descriptive cross-sectional study conducted between January and February 2020. The researcher accessed archived files from the medical records department of mothers who gave birth between 1 July and 31 December 2019. This design was chosen because it would give a complete picture of partograph use at the facility, as the records are not altered once they have been archived.

Study setting

The study was conducted at the Lira Regional Referral Hospital, which is one of 14 public regional referral hospitals in Uganda. The facility was chosen as it is one of the busiest in northern Uganda. According to hospital records, the maternity unit delivers an average of 415 babies by spontaneous vaginal birth and 110 babies by caesarean section every month. In 2019, the facility registered 5992 births in total. The maternity unit is run largely by midwives, supported by student nurses/midwives, doctors and clinicians. The unit has three delivery beds and averages three midwives per shift, while the client:midwife ratio in the unit is approximately 7:1 per shift.

Participants

The study included all partographs archived in the files of mothers who gave birth between 1 July and 31 December 2019 at the Lira Regional Referral Hospital. Files without partographs and partographs not initiated at the hospital were excluded, as were files of mothers who arrived at the hospital in the second stage of labour.

Sampling

The sample size was determined using the Kish (1965) formula, where standard normal deviation (z) at a 95% level of confidence was 1.96, the margin of error (e) was 5%, and assumed prevalence (p) was 50%. The calculated sample size was rounded to 384 files. Consecutive sampling was used to sample the files for review until the calculated sample size was reached. Files that did not meet the inclusion criteria were replaced to maintain the desired sample size. The researcher reviewed 1290 files and of these, 400 files were included while 890 files were excluded.

Data collection

Files were screened and eligible files were reviewed and the data extracted. The review of each file and data extraction took approximately 30 minutes. Data were extracted using a structured checklist of the parameters of a partograph. The components of the checklist were sociodemographic data (name, age, last normal menstrual period, gravidity, parity, date of admission, expected date of birth, weeks' gestation, and time of membrane rupture), fetal

heart rate, status of membranes, amount and colour of liquor, degree of moulding, extent of cervical dilation, contractions per 10 minutes, descent of the presenting part, mother's vitals (blood pressure, pulse rate, temperature, respiratory rate), drugs given (such as oxytocin), urine tests (acetone, albumin and sugar tests) and birth outcome.

Variable measures

Partograph completion was assessed by determining the proportion of completed sections based on the following criteria: 'complete' (all the three components filled out: fetal monitoring, labour progress and maternal monitoring), 'adequately filled' (three components had some information, even if lacking in parameters), 'inadequately filled' (only two components filled out), 'grossly inadequate' (one component filled out) 'blank' (no parameter of partograph was filled).

Each parameter was reviewed and recorded as either 'documented' or 'not documented'. The parameters were further assessed to determine whether they were documented according to recommended standard protocols for using a partograph during labour monitoring (Rosser, 1994). The standard protocols are that fetal heart rate, maternal pulse and uterine contractions should be monitored and charted every 30 minutes, cervical dilatation, descent of the presenting part and moulding should be monitored every 4 hours and blood pressure should be monitored every 2 hours. If the standard criteria were not met during documentation, the parameter was deemed 'not documented'.

Data analysis

The data were checked for completeness and field editing was carried out at the end of each day to ensure a complete dataset. Data were entered in the Statistical Package for Social Sciences (version 23) and scanned for out-of-range and missing values before data analysis. Variables were analysed using descriptive statistics and cross-tabulation.

Ethical considerations

This research was approved by an adhoc scientific committee of Faculty of Health Sciences members at Lira University (2020-001). An adhoc committee was used as per university policy regarding minimal risk studies. As secondary data with no patient identifiers was used, it was deemed a minimal risk study. Administrative clearance was obtained from the offices of the hospital director and data clerk at the Lira Regional Referral Hospital. Data were private and confidential, with codes used instead of participants' names, and the data were password protected.

Results

The largest proportion of the partographs were charted by midwives (42%), followed by unspecified cadres (31%), student nurses/midwives (27%) and clinicians (1%). Only 20 (5%) of the 400 partographs reviewed were completely filled, and most (63%) were adequately filled (**Figure 1**).

Table 1 shows the various parameters of the partograph and how complete they were. The patient's name was the most documented sociodemographic characteristic (93.0%), time of admission was most documented for admission characteristics (76.5%) and type of birth was most documented for outcomes (75.2%). Almost half of the partographs did not have gestation documented (48.5%) and the majority did not have vitals documented (68.0%).

The average documentation of parameters for fetal monitoring, labour progress and maternal monitoring were 79.5%, 80.0% and 25.5% respectively, while the average documentation of those same parameters to the required standard levels were 45.0%, 44.8%, and 15.8% respectively. Cervical dilatation was most frequently documented to the required standards (51.5%), while temperature was least frequently documented to the required standards (12.5%) (**Table 2**). Cervical dilation was most frequently documented in any way (87.5%) and to the required standard (51.5%). Urine output was most frequently undocumented in any way (84.0%), while temperature was most frequently undocumented to the required standards (87.5%).

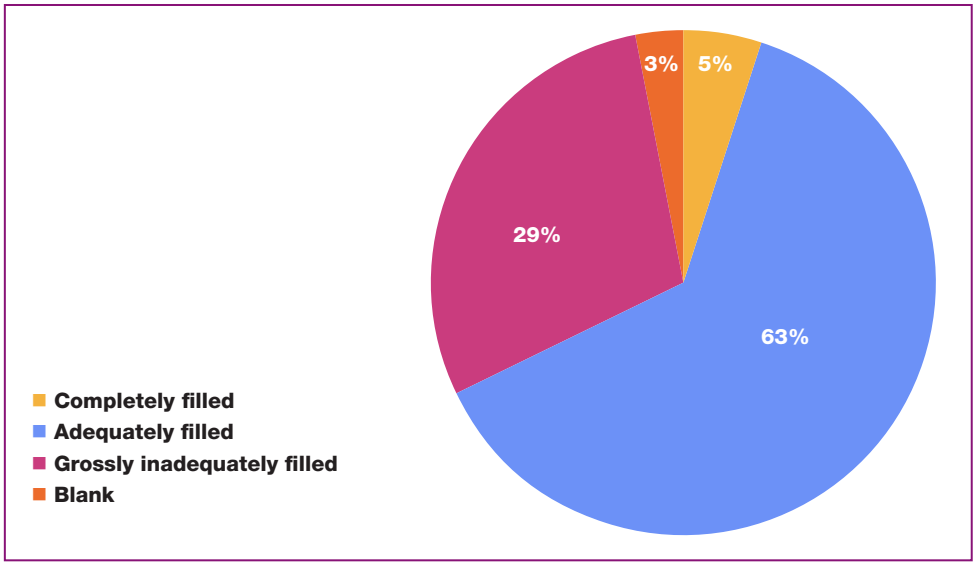

Figure 1. Level of partograph completion.

Table 1. Partograph documentation (*n*=400)

Characteristic	Documented (%)	Not documented (%)
Sociodemographic		
Name of patient	372 (93.0)	28 (7.0)
Weeks' gestation	206 (51.5)	194 (48.5)
Age	356 (89.0)	44 (11.0)
Gravidity	359 (89.8)	41 (10.2)
Parity	355 (88.8)	45 (11.2)
Admission		
Time of admission	306 (76.5)	94 (23.5)
Time of membrane rupture	91 (22.8)	309 (77.2)
Outcomes		
Time of birth	299 (74.8)	101 (25.3)
Type of birth	301 (75.2)	99 (24.8)
Vitals	128 (32.0)	272 (68.0)
Sex of newborn	294 (73.5)	106 (26.5)
Weight of newborn	243 (60.8)	157 (39.2)
APGAR score	278 (69.5)	122 (30.5)

Discussion

The purpose of this study was to assess partograph completion and documentation by skilled health personnel at the Lira Regional Referral Hospital in northern Uganda. The majority of partographs reviewed were charted by midwives (42%) and only 5% were filled to the required standards. The average documentation of parameters for fetal monitoring, labour progress and maternal monitoring to the required standard levels were generally low at 45.0%, 44.8%, and 15.8% respectively. These findings suggest that there is a low level of use of the partograph as a tool to monitor mothers during intrapartum care. This poor documentation may hinder prompt diagnosis and clinical decision-making regarding

Table 2. Documentation of fetal monitoring, labour progress, and maternal monitoring

	Frequency (%)			
	Any documentation		Documented to required standard	
Parameter	Documented	Not documented	Documented	Not documented
Fetal monitoring				
Fetal heartrate	332 (83.0)	68 (17.0)	173 (43.2)	227 (56.8)
State of membranes	323 (80.8)	77 (19.2)	181 (45.2)	219 (54.8)
Colour of liquor	308 (77.0)	92 (23.0)	184 (46.0)	216 (54.0)
Moulding	307 (76.8)	93 (23.2)	183 (45.8)	217 (54.2)
Labour progress				
Cervical dilation	350 (87.5)	50 (12.5)	206 (51.5)	194 (48.5)
Descent of the head	285 (71.2)	115 (28.8)	149 (37.3)	251 (62.7)
Uterine contractions	324 (81.0)	76 (19.0)	182 (45.5)	218 (54.5)
Maternal monitoring				
Pulse	125 (31.2)	275 (68.8)	73 (18.2)	327 (81.8)
Blood pressure	123 (30.8)	277 (69.2)	65 (16.2)	335 (83.8)
Temperature	96 (24.0)	304 (76.0)	50 (12.5)	350 (87.5)
Urine output	64 (16.0)	336 (84.0)	-	-

prolonged or obstructed labour. Delay in clinical decision-making from poor documentation may consequently contribute to poor birth outcomes.

Consistent with previous studies (Mukisa et al, 2019; Bedada et al, 2020), the present study found that the partograph completion rate by skilled health personnel was generally low. A similar study conducted in one of the busiest public hospitals in central Uganda reported the same rate of partograph completion (5%) (Mukisa et al, 2019). Mukisa et al (2019) attributed the low completion rate to healthcare professionals' limited time for documentation, health system challenges, including a lack of partographs, and a high workload. However, a similar study conducted among skilled care personnel at public health facilities in southern Ethiopia reported a higher rate of 15%. The disparities in these findings could be because of variability in the number of partographs reviewed. The Ethiopian study reviewed only 65 partographs compared to this study's 400 partographs; therefore, the possibility for overestimation of partograph completion was higher in the Ethiopian study. Overall, the underwhelming rate of partograph completion may indicate gaps in healthcare professionals' knowledge of how to use a partograph, as well as health system challenges that need to be addressed. The Ministry of Health and other responsible stakeholders should provide regular in-service capacity development training for skilled health personnel on partograph documentation.

The trends in documentation of parameters for fetal monitoring, labour progress and maternal monitoring to the required standards in the present study were similar to that of other studies conducted in public health facilities in central Uganda and southwest Malawi, where fetal monitoring had the highest rate of documentation followed by labour progress and then maternal monitoring (Mandiwa and Zamawe, 2017; Mukisa et al, 2019). This

could be attributed to a lack of basic equipment, such as blood pressure machines and thermometers for monitoring maternal vitals (Munabi-Babigumira et al, 2017). Additionally, the low documentation of maternal parameters could underscore the tendency of skilled health personnel to focus on the wellbeing of the fetus during intrapartum care (Shimoda et al, 2015). Monitoring maternal vital signs allows for the early detection of danger signs during intrapartum care, such as raised blood pressure, high fever and low urine output. Therefore, the importance of monitoring maternal vital signs in averting pregnancy-related complications cannot be underestimated during intrapartum care. Partograph audit exercises and support supervision should emphasise the importance of documenting both maternal and fetal parameters during intrapartum care.

Limitations

This study had limitations that must be considered in the interpretation and application of the results. First, this was a retrospective desk review of partographs and therefore, there was no opportunity to clarify unclear or missing information in the files. Second, the partographs were from only one public health facility in northern Uganda and so the findings of this study may not be representative of the whole of Uganda. Generalisation of the findings should be made with caution. Finally, consecutive nonprobability sampling was used and therefore selection bias might have been introduced during file selection.

Nonetheless, the relatively large sample size and the choice of a referral hospital that is arguably more equipped compared to other lower health facilities make the estimates from this study a good proxy of completion and documentation of partographs in other health facilities in the country.

Conclusions

These findings indicate that completion of partographs in northern Uganda fall below the expected standards. The study expands the body of knowledge on completion rate and documentation of parameters of the partograph by skilled health personnel in public health facilities. The results can be used to inform partograph audit exercises and support the supervision and continued capacity development training of skilled health personnel. Future research should focus on exploring context-specific barriers and facilitators to partograph documentation to inform the design of interventions to improve documentation.

Author details

[1]Masaka Regional Referral Hospital, Masaka, Uganda

[2]Department of Nursing and Midwifery, Faculty of Health Sciences, Lira University, Lira, Uganda

Acknowledgments

The authors would like to thank the staff at maternity ward and records office of Lira Regional Referral Hospital for their support during the study, and the teaching staff in the Department of Nursing and Midwifery, Faculty of Health Sciences-Lira University for their guidance. The authors would also like to acknowledge Mr Joshua Epuitai for proofreading and editing the final draft of the manuscript.

Key points

- Most of the partographs reviewed were charted by midwives and only 5% were filled to the required standards.
- Average documentation of parameters of a partograph to the required standards was 45.1% for fetal monitoring, 44.8% for Labour progress, and 15.6% for maternal monitoring.
- Poor partograph documentation may hinder prompt diagnosis and clinical decision-making regarding prolonged or obstructed labour.

Conflicts of interest

The authors declare that there are no conflicts of interest.

References

Ayenew AA. Incidence, causes, and maternofetal outcomes of obstructed labor in Ethiopia: systematic review and meta-analysis. Reprod Health. 2021;18(1):1–14. https://doi.org/10.1186/s12978-021-01103-0

Ayenew AA, Zewdu BF. Partograph utilization as a decision-making tool and associated factors among obstetric care providers in Ethiopia: a systematic review and meta-analysis. Syst Rev. 2020;9(1):1–11. https://doi.org/10.1186/s13643-020-01505-4

Bailey PE, Andualem W, Brun M et al. Institutional maternal and perinatal deaths: a review of 40 low and middle income countries. BMC Pregnancy Childb. 2017;17(1):1–14. https://doi.org/10.1186/s12884-017-1479-1

Bedada KE, Huluka TK, Bulto GA. Low utilization of partograph and its associated factors among obstetric care providers in governmental health facilities at West Shoa Zone, Central Ethiopia. Int J Reprod Med. 2020;2020:1–9. https://doi.org/10.1155/2020/3738673

Haile Y, Tafese F, Weldemarium TD, Rad MH. Partograph utilization and associated factors among obstetric care providers at public health facilities in Hadiya Zone, Southern Ethiopia. J Pregnancy. 2020;2020:1–8. https://doi.org/10.1155/2020/3943498

Hák T, Janoušková S, Moldan B. Sustainable development goals: a need for relevant indicators. Ecol Indicators. 2016;60:565–573. https://doi.org/10.1016/j.ecolind.2015.08.003

Hofmeyr GJ, Bernitz S, Bonet M et al. WHO next-generation partograph: revolutionary steps towards individualised labour care. BJOG. 2021;128(10):1658–1662. https://doi.org/10.1111/1471-0528.16694

Kish L. Survey sampling. New York (NY): Wiley; 1965

Mandiwa C, Zamawe C. Documentation of the partograph in assessing the progress of labour by health care providers in Malawi's South-West zone. Reprod Health. 2017;14(1):1–7. https://doi.org/10.1186/s12978-017-0401-7

Mukisa J, Grant I, Magala J et al. Level of Partograph completion and healthcare workers' perspectives on its use in Mulago National Referral and teaching hospital, Kampala, Uganda. BMC Health Serv Res. 2019;19(1):1–8. https://doi.org/10.1186/s12913-019-3934-3

Munabi-Babigumira S, Glenton C, Lewin S, Fretheim A, Nabudere H. Factors that influence the provision of intrapartum and postnatal care by skilled birth attendants in low-and middle-income countries: a qualitative evidence synthesis. Cochrane Database Syst Rev. 2017;2018(2). https://doi.org/10.1002/14651858.CD011558.pub2

Rosser J. World Health Organization partograph in management of labour. MIDIRS Midwif Dig. 1994;4(4):436–437

Say L, Chou D, Gemmill A et al. Global causes of maternal death: a WHO systematic analysis. Lancet Glob Health. 2014;2(6):e323–e333. https://doi.org/10.1016/S2214-109X(14)70227-X

Shimoda K, Leshabari S, Horiuchi S, Shimpuku Y, Tashiro J. Midwives' intrapartum monitoring process and management resulting in emergency referrals in Tanzania: a qualitative study. BMC Pregnancy Childbirth. 2015;15(1)1–10. https://doi.org/10.1186/s12884-015-0691-0

Uganda Bureau of Statistics. Uganda national household survey 2016/2017. 2018. https://www.ubos.org/wp-content/uploads/publications/03_20182016_UNHS_FINAL_REPORT.pdf (accessed 6 July 2022)

World Health Organization. Strategies towards ending preventable maternal mortality (EPMM). 2015. https://data.unicef.org/wp-content/uploads/2017/02/EPMM_Strategies-document_2015.pdf (accessed 4 August 2022)

World Health Organization. Trends in maternal mortality 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. 2019. https://www.unfpa.org/sites/default/files/pub-pdf/Maternal_mortality_report.pdf (accessed 4 August 2022)