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THE PARTOGRAPH AS A SAFETY INSTRUMENT IN OBSTETRIC CARE

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ABSTRACT

The objective of the study is to analyze partograph's fulfillment as a safety instrument in obstetric care accomplished by healthcare professionals. Transversal, retrospective and documental study in a maternity school of Brazil. The sample was made of 263 partographs. The records were analyzed as complete, partial or with no record. The average age group was of 24.86 years old. At the identification, only the name was filled on all partographs. Only 25.9% had serology for HIV and syphilis noted. The variety of position was not registered on most of them. Only 2.7% had the vital signs and 4.6% recorded that they were under the use of medication. The APGAR, weight and height of the newborn was not filled on most of them. The average cervical expansion of the partograph's opening was of 6.32 cm. There was a statistically significant association between the partograph's early opening with a higher number of vaginal touches. The chance of episiotomy and severe laceration were four times higher on women that used endovenous oxytocin. It was verified that the majority of the partograph's item were registered. However, only the names were fulfilled on all instruments. Flaws were also identified in regard of their standardization.

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INTRODUCTION

The researches in the area of obstetric have been showing the importance of distinguish the progression between both labor, physiological and non-physiological, specially to diminish cesarean section rates, being recommended by the World Health Organization (WHO) to be between 10% to 15% of all childbirths (WHO, 2015). For a valid obstetric evaluation, the partograph may be used as a relevant tool, because it amplifies the quality of the offered care and maternal and neonatal outcomes (JUHASOVA et al., 2018). This way, the WHO recommends the partograph's utilization, which is an instrument of extreme relevance for the health professionals, since it provides a graphic representation with information about any changes at the process of labor. This resource eases the visualization of cervical dilation and fetal position, in

relation to time. It may be used to acknowledge issues during labor in due time, enabling the health team to accomplish the adequate interventions (WHO, 2014; MEZMUR et al., 2017). The partograph's knowledge and utilization has its evidences, which, when correctly applied during labor, results in a notable reduction of issues during extended childbirths, impacting in the reduction of maternal and neonatal mortality (ASIBONG et al., 2014). The partograph's non-usage is associated with worse maternal and neonatal results, especially in undeveloped countries (YAZBEK; JOMEEN, 2019). Furthermore, it is a tool of low cost, huge benefits and requires low complexity training. Although decades of training and investments, the partograph's correct use remains low (DALAL; PURANDARE, 2018). The individual evaluation of each woman regarding the partograph's records stands out, since it was, recently highlighted that the cervical dilation is faster on

multiparous women and fetal occipitoanterior position and that the use of epidural anesthesia, a higher fetal weight and the head circumference are a few factors that makes the dilation slower and, this may result in prolonged labor (JUHASOVA *et al.*, 2018). Although the partograph's utilization is recognized with scientific evidences and is mandatory in maternities since 1994, studies indicate that there is still a low adhesion to the partograph's by the institutions and an insufficient knowledge by the health professionals (ALMEIDA *et al.*, 2016; LUMADI, 2017). In addition to this, the current study is justified by the lack of national and international studies approaching the theme related to the fulfillment's quality of the partographs used in maternities, with the purpose of identifying the main items that are incompletely recorded or not recorded at all, making it possible to educate the managers and health professionals in relation to gaps on its fulfillment and the accomplishment of effective interventions to remedy them. Therefore, the objective was to analyze the partograph's fulfillment as instrument of safety regarding obstetric care, accomplished by professionals that provide childbirth care inside a school maternity of reference in Fortaleza, State of Ceará, Brazil.

MATERIALS AND METHODS

This is a cross-sectional study with retrospective and documental collection accomplished inside the Assis Chateaubriand Maternity School in Fortaleza, Ceará, Brazil, reference at obstetric are of high complexity. The maternity is recognized as a pioneering center of good practice regarding obstetric and neonatal care in Brazil. The sample was simple random, based in the formula for finite population (MAROTTI *et al.*, 2008), with a confidence level of 95% and prevalence of 39% for vaginal childbirths and maximum allowed sample error of 5%, totaling a final sample of 263 partographs. Partographs annexed to medical records of women who had vaginal childbirth with live births were included in the study. The exclusion conditions were the following: women admitted in the expulsive period of labor were excluded from this research, since in this case the proper fulfillment is not appropriate. The data was gathered between June to October of 2018, with medical records information of vaginal childbirth from July to December of 2017. An instrument elaborated by the author himself referring to the items that are part of the partograph annexed to the medical records was used, with the investigation of data from before, during and after the childbirth, as well as data from the newborn child. The partograph's records were analyzed as complete, incomplete or with no record. Due to the occurrence of items that were not fulfilled at the partograph, it was necessary to look for other information in the medical records, such as prescription, clinical evolution, records of anesthesia/analgesia and the declaration of being born alive. The incomplete record was not considered in cases of dichotomous variables or that needed the full information record.

The research data was collected and handled using the electronic tool of gathering and data management REDCap (HARRIS *et al.*, 2009), compiled at the Unit of Clinical Research from the Complex of University hospital from Federal University of Ceará. The Chi-square test, Fisher's exact test and non-parametric tests (Test of Mann-Whitney and test of Kruskal-Wallis) were used to analyze the qualitative variables. The values of p were considered statistically significant when inferior to 0.05 and the odds ratio from the

item regarding the use of endovenous oxytocin, with a confidence interval of 95%. The study was approved by the Committee of Ethics in Research from the Maternity School Assis Chateaubriand, under report n° 2.627.893, in accordance with the Resolution n° 466/12 of the National Council of Health in Brazil for researches involving human beings.

RESULTS

263 partographs of women who had birth vaginally and a newborn term infant were analyzed, stating that the average women's age group was of 24.86 years, varying from at least 13 to a maximum of 42 years old (SD + 6,65). In accordance with Table 1, it was highlighted that most part of the items related to the patient's identification was partially filled, being only the name fulfilled in all instruments. The medical record's number was completely fulfilled by the professionals in 51.3% of the partograph and the woman's age in 75.7%. Regarding obstetric history, considering the number of pregnancies, childbirths and abortions, 49.8% was completely fulfilled. The parity was expressively fulfilled in 97.7%. The gestational age had its record included in 87.1% and the number of living and dead children in 60.8%. Additionally, it was observed that only 25.9% had serology for HIV and syphilis through quick tests adequately noted, being the quick test for syphilis still less fulfilled than the quick test of HIV.

Table 1. Frequency of completion of patient identification partograph items, obstetric history and clinical data of a maternity school in Fortaleza. Fortaleza, State of Ceara, Brazil, 2018

Items of Partograph	Full record		Partial record		No record	
	n	%	n	%	n	%
Identification	118	44.9	145	55.1	-	-
Name	263	100	-	-	-	-
Medical record's number	135	51.3	-	-	128	48.7
Age	199	75.7	-	-	64	24.3
Obstetric History	131	49.8	126	47.9	6	2.3
Parity	257	97.7	-	-	6	2.3
Previous type of delivery	186	70.7	-	-	77	29.3
Gestational age	229	87.1	-	-	34	12.9
Number of children	160	60.8	-	-	103	39.2
Diagnosis	150	57.0	-	-	113	43.0
Blood typing	160	40.3	-	-	157	59.7
Serology	68	25.9	2	0.8	193	73.4
HIV serology	69	26.2	-	-	194	73.8
Syphilis serology	68	25.9	-	-	195	74.1

Source: Research data, 2018.

Regarding the fetus situation, 84.8% had this record. The fetal presentation also had close values, being 84% fulfilled. On the other hand, the variation of position was not registered on most cases, since 66.5% did not had this information. The cervical dilation was fulfilled in 99.2% of the instruments. Most part of the presentation's height had the complete record, identified in 96.6%. In relation to the vaginal examination, 90.5% were completely fulfilled with the exam's date and time. Records were found in 89.7% of the instruments referring about the fetal heart rate (FHR). The dynamic behavior of uterine contractions, measured by the number and duration of contractions were completely recorded in 64.3%. The amniotic sac condition, regarding its integrity, was fulfilled in 79.8%. Only 2.7% of the partograph's had the vital signs recorded, being one of the least fulfilled records directly at the instrument. From these parameters, the item with the highest fulfillment was the pressure rating, but still, it was found only at 11.8%. One highlights that this item's measurement was not done in another part of the medical record. Only 4.6% had

recorded information about the medication use, even with the use of endovenous oxytocin during labor in 20.2% of the participants. This data was located at the medical prescription. The use of epidural anesthesia, as a pharmacological method for pain relief, was remotely found in the sample. Its use was observed in only 5.3% of the women who had normal childbirth. Additionally, it was observed that 84% of the partographs were signed and stamped by the professionals in the reserved space to obstetric evaluation during labor. The data regarding the newborn child were completely fulfilled in only 3.8%, being mostly only partially recorded. The information about the baby's gender was adequately recorded in 96.2% of the partographs, however, the APGAR, the weight and height were not fully recorded in the majority of the cases.

The delivery of the placenta was highly fulfilled in 77.9%. The placenta's side, fetal - Baudelocque-Schutz (BS) or maternal - Baudelocque-Ducan (BD), is also present as an item of filing and 94.7% were complete. The active or spontaneous method of afterbirth was completely registered in 90.1%. The item about manually removing the placenta had complete records in 89.7% of the instruments, the placenta's exam in 88.6% and the vessels of the umbilical cord in 83.3%. Instruments initiated with 02 cm up to 09 cm were observed, but the complete dilation of 10 cm was not approached at the study for being characterized as an exclusion condition. The instrument's average aperture dilation was of 6.32 cm, having a mode of 06 cm (SD + 1.53). The institutional protocol follows the ACOG's recommendation, therefore, in this study, it was considered as early aperture when the instruments had records of cervical dilation of less than 06 cm. There was a statistically significant association between the partograph's early aperture with a higher number of vaginal examinations ($p < 0.001$), demonstrating the importance of not admitting parturient in the maternities too early, avoiding unneeded and potentially iatrogenic interventions. The obstetric evaluations varied from one to eight vaginal examinations during labor, being the average of 2.31 exams (SD + 1.35). On the other hand, regarding the number of professionals that evaluated, it varied from one to seven different professionals per labor, with an average of 2.01 professionals (SD + 1.11).

In relation to the amniotomy, 16.3% of the women in labor were submitted to this procedure. It is worth it to highlight that there is no objective item related to amniotomy to be filled in the dichotomous variables with a "yes" or "no", thus, depending, from the professionals' written record in the observations of the partographs or the clinical evolution, making space for sub-records about this information. Regarding laceration, where the professional marks if there is the presence of laceration or not, had a filling of 91.6% and the minor suture, 90.5%. The register of the execution or not of episiotomy was around 92.8%. Other records were also observed, such as, the evolution and institutional indicators sheets, to account this procedure's frequency, since the sub-record could jeopardize some data. It was identified that 28.5% had an intact perineum. Laceration of first degree occurred in 28.9% of the women, 27%, of second degree and 4.2% of third degree. There was no record of a fourth degree laceration. On the other hand, the episiotomy was made in 4.9%. In addition to this, 6.5% did not had their level of laceration recorded. One highlights that there was no statistically significant association between the woman's age and the level of laceration ($p = 0.13$). To prevent the afterbirth bleeding, it was applied in all women the intramuscular oxytocin after birth. Whereas the

endovenous oxytocin during labor was used in 20.2%. By relating the use of endovenous oxytocin with the occurrence of episiotomy or serious laceration (3° degree) and light laceration (1° or 2° degree) or the absence of both, it was obtained 22.4% of episiotomy and serious laceration of 3° degree, thus, being statistically significant ($p = 0.002$). Moreover, it was highlighted that the odds rate to occur an episiotomy and serious laceration was 4 times higher when compared to the group that did not used endovenous oxytocin (CI= 95%, varying from 1.707 to 9.835). The afterbirth items, that covers the formation of Pinard's Globe, bleeding and the use of uterotonic, were not completely filled, but had a considerable frequency, with 81% of complete records. The labor's position is also relevant and 8.4% did not had this information filled. The register of horizontal positions was of 20.9% and of vertical positions, 70.7%. It was noted that the adopted position during labor had no statistically significant relation with the laceration events ($p = 0.09$), demonstrating that there was no association between the verticalized position during labor with a higher frequency of serious lacerations. Among the professionals that were attend the labors, 43.4% were by obstetric nurses and 55.1% by doctors. No record about the professionals that aided the labor were found in 1.5% of the instruments. Only 1.9% of the partographs had no labor's description, 0.8% were without the labor's date and 2.3% had no register of the time of birth. To conclude the partograph's filling, it is relevant that the professionals sign their records about the labor's obstetric support, and the study adequately verified that 97.3% had the support record via signature and stamp.

DISCUSSION

It is worth to highlight that the professionals must have adequate knowledge and be capable of filling the partograph, with the purpose of promoting a safer obstetric support, since an African research showed that the health professionals had a lack of knowledge in relation to the filling and use of the partograph and 58.78% reported to not even use it (MAPHASHA *et al*, 2017). A study made in Alagoas identified that the most filled items of the partographs were the pregnant woman's identification, in 72% of the sample, the condition of the amniotic membranes, 61% and the time of birth, 93%. In contrast, the record about the variety of position was the smallest, only in 11% (BARROS; VERÍSSIMO, 2011). Detached from the aforesaid percentage, in the current study the patient's identification with complete records had a rate of 44.9% and only the name was present on 100% of the partographs. The variety of position endorsed the low indicators of filling. An Australian study that also analyzed the device revealed and average age of the parturient a little higher than the one found in the current study, of 28 and 29.6 years in two analyzed groups (LEE *et al.*, 2018). In Brazil, it is recommended to accomplish the following items: monitoring of uterine contractions and the mother's pulse during labor between intervals of one hour and the verification of the temperature and arterial blood pressure between intervals of four hours at the labor's first clinical period (BRASIL, 2017). At African countries, the auscultation of fetal heart, mother's pulse and uterine contractions must be evaluated every 30 minutes; the cervical dilation and the presentation decline every four hours and the arterial blood pressure, every two hours (OPOKU; NGUAH, 2015). It was highlighted in Indian districts that the monitoring frequency of temperature, pulse and arterial blood pressure was low, agreeing with the findings

discovered, as well as the monitoring of the dynamic behavior of uterine contractions and the FHR was also lower than expected. In contrast, a great number of vaginal exams was confirmed and the partographs were used only in 15.8% of the labors (SINGH *et al.*, 2018). One emphasizes that the institutions encompass their routine of vital signs verification and they are commonly registered in the nursing notes. However, it is up to the professional in charge to fulfill the partograph, evaluating the vital signs or also putting them at the partograph.

A study with more than 4,000 women in Nepal revealed that the intermittent auscultation of fetal heart every 30 minutes was only accomplished in 25% of the sample, thus, associating to an increased risk in four times for the intrapartum fetal death when this evaluation takes longer than 30 minutes of interval. In addition to this, it was observed that when the monitoring was not made or made in intervals of more than one hour, this risk increased to seven times (KC *et al.*, 2016). An analysis revealed that the mother's pulse and the arterial blood pressure were absent in 60% of the cases. The cervical dilation was not compiled in 44% of the partographs and the dynamic behavior of uterine contractions was absent in 40% (OPOKU; NGUAH, 2015). On the other hand, in Ethiopia, it was found that from the 420 partographs researched, 30.7% had records of the FHR, 32.9% of cervical dilation and 20.7% of uterine contractions evaluated and filled. Only 26.9% had information about the membranes' integrity and only 18.6% had information in relation to the arterial blood pressure (YISMA *et al.*, 2013). The results diverged a little from the results here exposed, since the FHR evaluation, the amniotic sac condition, the cervical dilation and the dynamic behavior of uterine contractions were adequately filled in most of the partographs. However, in the African study aforesaid the notes of the arterial blood pressure values found were higher (YISMA *et al.*, 2013). There was an emphasis for the occurrence of serious lacerations and episiotomy in women that used EO oxytocin. The infusion of EO oxytocin was found in 60.6% of the cases of serious lacerations of third and fourth degree (DJAKOVIĆ *et al.*, 2018). A study about the muscles from the pelvic floor also found a higher rate of episiotomy in women that used EO oxytocin (KARAHAN *et al.*, 2018). One highlights the little occurrence of serious lacerations of third degree, the absence of lacerations of fourth degree and executed episiotomy in only 4.9% of the sample. In this context, the WHO recommends that this procedure should not be executed in a daily basis and emphasizes that a "acceptable" rate for this procedure is hard to determine. Moreover, one highlights that importance of the expressive number of labors accomplished in verticalized positions, clarifying that the freedom of choice of position and the assurance of the woman's autonomy during her labor are relevant (WHO, 2018).

Conclusion

One concludes that the partograph is an effective tool and with a low cost, that must be used in all parturient and the obstetric caregiver is the general agent to make complete and adequate records, beginning at the labor's active phase. That way, it is possible to give an individualized follow-up, easing the identification of any changes in the well-being of the binomial mother-fetus. It was affirmed that the partograph's items were mostly recorded. However, only the women's names were filled in all researched instruments and it was identified that

the remaining items were not fully registered, causing flaws in the standardization of these records. The greatest sub-records detected were items related to blood type and Rh factor, quick tests for HIV and syphilis, variety of position, vital signs, medications and fluids and weight and height of the newborn child. Sometimes, this information was found in other spaces of the medical record. Although, all these records should also be in the partograph, as an additional form of safety to the patient and professional, as well as making it possible to optimize time in the search for this kind of data. It is valid to highlight the importance of the maternities to promote strategies to sensitize the professionals in relation to the adequate partograph's filling, since it has great relevance in the obstetric scenario at identifying disfunctions in the labor's physiology, and also promote training sessions by means of introduction and discussion of the institutional protocols. In face of what has been exposed, the results of this study must be cautiously analyzed, due to its limitations. One of the limitations was the inadequate filling of the items related to obstetric care in the partograph, since the data gathering directly depends on this factor. Therefore, one suggests new studies about the partograph's use and filling and highlights the need of its adequate use. One emphasizes the importance of implement obstetric care with quality and safety, contributing to healthy births, reducing unneeded cesarean sections in Brazil and iatrogenic related to the labor's cramped care.

REFERENCES

- ACOG (American College of Obstetricians and Gynecologists) (2014) Obstetric Care Consensus No. 1, Safe prevention of the primary cesarean delivery. *Obstet Gynecol.* 123: 693–711. <https://www.acog.org/-/media/Obstetric-Care-Consensus-Series/oc001.pdf?dmc=1>
- Almeida BF, Ribeiro JF, Araújo KRS, Lavôr TBSL (2016). Assistance process to normal birth in a public maternity of piauí, 2015. 5 (2): 45-56. <http://seer.uftm.edu.br/revistaeletronica/index.php/enfer/article/view/1521/pdf>
- Asibong U, Okokon IB, Agan TU, Oku A, Opiah M, Essien EJ, Monjok E (2014). The use of the partograph in labor monitoring: a cross-sectional study among obstetric caregivers in General Hospital, Calabar, Cross River State, Nigeria. *Int J Womens Health.* 13 (6): 873-80. <https://www.ncbi.nlm.nih.gov/pubmed/25342920>
- Barros LA, Veríssimo RCSS (2011). Use o partogram in maternity hospitals of Alagoas. *Rev Rene.* 12 (3): 555-560. <http://periodicos.ufc.br/rene/article/view/4284/3301>
- Brasil. Ministério da Saúde. Secretaria de Ciência, Tecnologia e Insumos Estratégicos. Departamento de Gestão e Incorporação de Tecnologias em Saúde. Diretrizes Nacionais de Assistência ao Parto Normal (versão resumida). Brasília, DF, 2017. http://bvsms.saude.gov.br/bvs/publicacoes/diretrizes_nacionais_assistencia_parto_no_rmal.pdf
- Brasil. Ministério da Saúde. Secretaria de Políticas de Saúde. Área Técnica de Saúde da Mulher. Parto, aborto e puerpério: assistência humanizada à mulher. Brasília, 2001. http://bvsms.saude.gov.br/bvs/publicacoes/cd04_13.pdf
- Dalal AR, Purandare AC. 2018. The Partograph in Childbirth: Na Absolute Essentiality or a Mere Exercise? *J Obstet Gynaecol India.* 68 (1): 3-14. <https://link.springer.com/article/10.1007/s13224-017-1051-y>

- Djaković I, Ejubović E, Bolanča I, Markus-Sandric M, Bečić D, Djaković Ž, Košec, V. 2018. Third and Fourth Degree Perineal Tear in Four-Year Period at Sestre Milosrdnice University Hospital Center, Zagreb, Croatia. Open Access *Maced J Med Sci.* 6 (6): 1067-1071. <https://www.ncbi.nlm.nih.gov/pubmed/29983803>
- Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. 2009. Research electronic data capture (REDCap) – A metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform.* 42 (2): 377-381. https://journals.lww.com/greenjournal/Citation/1955/12000/Pri-migravid_Labor_A_graphicostatistical_analysis.1.aspx
- Juhasova J, Kreft M, Zimmermann R, Kimmichi M. 2018. Impact factors on cervical dilation rates in the first stage of labor. *J Perinat Med.* 46 (1): 59-66. <https://www.degruyter.com/view/j/jpme.2018.46.issue-1/jpm-2016-0284/jpm-2016-0284.xml>
- Karahan N, Arslan H, Çam Ç. 2018. The behaviour of pelvic floor muscles during uterine contractions in spontaneous and oxytocin-induced labour. *J Obstet Gynaecol.* 38 (5):629-634. <https://www.ncbi.nlm.nih.gov/pubmed/29430972>
- Kc A, Wrammert J, Clark RB, Ewald U, Malqvist M. 2016. Inadequate fetal heart rate monitoring and poor use of partogram associated with intrapartum stillbirth: a case-referent study in Nepal. *BMC Pregnancy Childbirth.* 16: 233. <https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-016-1034-5>
- Lee NJ, Neal J, Lowe NK, Kildea SV. 2018. Comparing Different Partograph Designs for Use in Standart Labor Care: A Pilot Randomized Trial. *Maternal and Child Health Journal.* 22 (3): 355-363. <https://link.springer.com/article/10.1007%2Fs10995-017-2366-0>
- Lumadi, T. G. 2017. The perceptions of midwives regarding audit and feedback on the use of the partogram at Vhembe District of Limpopo Province, South Africa. *Curationis.* v. 40 (1): e1-e6. <https://www.ncbi.nlm.nih.gov/pubmed/28893074>
- Maphasha OM, Govender I, Motloba DP, Barua C. 2017. Use of the partogram by doctor and midwives at Odi District Hospital, Gauteng, South Africa. *South African Family Practice.* 59 (2): 82-86. <https://www.ajol.info/index.php/safp/article/viewFile/155881/145508>
- Marotti J, Galhardo APM, Furuyama RJ, Pigozzo MN, Campos TN, Laganá DC. 2008. Amostragem em pesquisa clínica: tamanho da amostra. *Rev Odont Univ Cidade de São Paulo.* 20 (2): 186-194.
- Mezmur H, Semahegn A, Tegegne BS. 2017. Health professional's knowledge and use of the partograph in public health institutions in eastern Ethiopia: a cross-sectional study. *BMC Pregnancy Childbirth.* 17: 291. <https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-017-1477-3>
- Opoku BK, Nguah SB. 2015. Utilization of the modified WHO partograph in assessing the progress of labour in a metropolitan area in Ghana. *Research Journal of Women's Health.* 2 (1): 2. <http://www.hoajonline.com/journals/pdf/2054-9865-2-2.pdf>
- Singh S, Kashyap JA, Chandhiok N, Kumar V, Singh V, Goel R. 2018. Labour & delivery monitoring patterns in facility births across five districts os India: A cross-sectional observational study. *Indian J Med Res.* 148(3): 309-316.
- WHO (World Health Organization). Declaração da OMS sobre taxas de cesárea, Genebra; 2015. http://apps.who.int/iris/bitstream/10665/161442/3/WHO_RHR_15.02_por.pdf
- WHO (World Health Organization). WHO recommendations for argumentation of labor. Geneva; 2014. https://apps.who.int/iris/bitstream/handle/10665/112825/9789241507363_eng.pdf?sequence=1
- WHO (World Health Organization). WHO recommendations: intrapartum care for a positive childbirth experience. Geneva, 2018. <http://apps.who.int/iris/bitstream/handle/10665/260178/9789241550215-eng.pdf;jsessionid=C69DFA0CE6E469FF6531D5819C8BAF2C?sequence=1>
- Yazbek M, Jomeen J. 2019. Use of the partogram in a private hospital in South Africa. *Midwifery.* 69: 128-134. [https://www.midwiferyjournal.com/article/S0266-6138\(18\)30340-1/fulltext](https://www.midwiferyjournal.com/article/S0266-6138(18)30340-1/fulltext)
- Yisma E, Dessalegn B, Astatkie A, Fesseha N. 2013. Completion of the modified World Health Organization (WHO) partograph during labour in public health institutions of Addis Ababa, Ethiopia. *Reproductive Health.* 13(1):1. <https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-13-17>
