



## Research paper

### Proper maintenance of modified national partogram: A retrospective audit in a tertiary care center

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#### ABSTRACT

**Introduction:** The partogram is usually a pre-printed paper form, on which labour observations are recorded.

**Aim:** To assess the standards of maintaining the National Partogram in University Obstetrics Unit, Colombo North Teaching Hospital, Ragama, Sri Lanka.

**Material and methods:** Retrospective analysis of conveniently selected partograms was conducted between November and December 2016. Gold standard is 100% accurate maintenance of the components of the partogram and 100% accurate interventions whenever it is necessary.

**Results and discussion:** Total of 121 partograms were studied. Mean (SD) age was 28.3 years (5.6). Mean parity was 1.6 (0.8). Mean gestational age was 38.4 (2.6). In total, 103 (85.1%) women had a vaginal delivery. Those who had special problems, only 6 out of 43 had written special instructions. Out of all, 24 (31.2%) had substandard documentation of contractions. Out of all partograms with documented duration of contractions, 17 (21.8%) had substandard documentation. Fetal heart rate properly documented in 94 (77.7%). Action and alert lines have been drawn in 24 (63.2%) high risk pregnancies and have been drawn only in 1 case (16.7%) of trial of scar out of 6. However, only 115 (95.0%) had a good 1-minute and 119 (98.4%) had a good 5-minute APGAR score.

**Conclusions:** Although neonatal outcome is satisfactory, standard documentation of partogram is poor. This needs to be improved by thorough education and frequent auditing. After this audit, a specific seminar was conducted using SLCOG partogram training module.

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## 1. INTRODUCTION

The aim of the partogram/partograph is to provide a pictorial overview of labour, to alert midwives and obstetricians to deviations in maternal or fetal wellbeing and labour progress. Charts often contain pre-printed alert and action lines. An alert line represents the slowest 10% of primigravid women's labour progress. An action line is placed a number of hours after the alert line (usually two or four hours) to prompt effective management of slow progress of labour.<sup>1</sup> Such practice is also recommended by the World Health Organisation (WHO) for use in active labour.<sup>2</sup> In 1954, Friedman introduced the concept by graphically depicting the cervical dilatation during labour which was an S-shaped curve.<sup>3</sup> In 1972, Philpott and Castle developed Friedman concept into a tool for monitoring of labour by adding 'Action and Alert' lines to the graph.<sup>4</sup> It serves as a simple, inexpensive, tool to monitor labour especially in resource limited settings.<sup>5,6</sup>

Midwives appear to be satisfied with the partograph as a usable tool for monitoring labour.<sup>7,8</sup> Positive attitudes towards the partograph are displayed by both midwives and doctors, but less so by other cadres of health care worker who also use the partograph.<sup>8,9</sup> One advantage of partograph use is that it enables health workers to take individual responsibility for labour management within their own sphere of practice.<sup>10</sup> Barriers to use include high workloads, poor staffing levels, duplication of records, lack of available policy or guidance and limited knowledge and understanding of the partograph.<sup>9,11,12</sup>

## 2. AIM

The aim was to assess the standards of maintaining National Partogram in labour ward of University Obstetrics Unit, Colombo North Teaching Hospital, Ragama, Sri Lanka.

## 3. MATERIAL AND METHODS

Retrospective analysis of conveniently selected partograms from the postnatal site of the University Obstetrics Unit, North Colombo Teaching Hospital, Ragama, Sri Lanka were done. It was conducted over a period of two months, November and December 2016. Gold standard reference was 100% accurate maintenance of the components of the partogram and 100% accurate interventions whenever it was necessary. Basic demographic and clinical data were collected from clinical notes. Proper stepwise documentation of each item in partogram and MEOWS chart was assessed retrospectively. Descriptive statistics was used to summarize and present the data.

## 4. RESULTS

Total of 121 partograms were studied. Mean (SD) age was 28.3 years (5.6). Mean parity was 1.6 (0.8). Mean gestational age was 38.4 (2.6). In total, 103 (85.1%) women had a vaginal delivery.

**Table. Non-documented items in partogram. CTG: Cardio-tocography, FHS: Fetal Heart Rate.**

Specific item in partogram	Frequency of not documenting the item (%) <i>n</i> = 121
Age	19(15.7)
Parity	18(14.9)
Gestational age	55(45.5)
Time of admission	20(16.5)
Special problems	18(14.9)
Special instructions	19(15.7)
Time of 1st cervical assessment	25(20.7)
Cervical dilatation at 1st assessment	27(22.3)
Contraction free interval	44(36.4)
Duration of contractions	43(35.5)
Fetal heart rate	22(18.2)
CTG findings	118(97.5)
Oxytocin dosage	84(69.4)
Membrane status	94(93.4)
Colour of liquor	79(65.3)
Fetal position during labour	117(96.7)
Presence of caput	117(96.7)
Presence of moulding	117(96.7)
Action and alert lines	67(55.4)
Cervical dilatation throughout labour	71(58.7)
Descent of the fetal head abdominally	1(99.2)
Descent of the fetal head in vaginally	94(77.7)
Taking of relevant actions	58(47.9)
Maternal blood pressure	68(56.2)
Maternal pulse rate	56(46.3)
Maternal temperature	52(43.0)
Time of full dilatation	121(100)
Time of start of pushing	121(100)
2nd stage FHR monitoring	121(100)
Urine test	121(100)

From the women who had a caesarean section, 8 (44.4%) had lack of progress in labour. Out of all deliveries, only 115 (95.0%) had a good 1-minute and 119 (98.4%) had a good 5-minute APGAR score. Neonatal resuscitation was performed for 6 (5.0%) newborns. MEOWS chart had properly been maintained only in 51 (47.1%) cases, maintenance was substandard in 44 (36.4%) cases, and in 26 (21.5%) cases it has not been maintained at all. Specific items which had not been documented in partogram, has been shown in Table. Out of those 43 patients who had special problems, only 6 had written special instructions at the relevant place. Out of all documented partograms for contraction-free interval, 24 (31.2%) had substandard documentation of contractions. Also, out of all partograms which had documented duration of contractions, 17 (21.8%) had substandard documentation. Fetal heart rate had been documented in 94 (77.7%).

Action and alert lines have been drawn in 24 (63.2%) out of 38 high risk pregnancies and they were drawn only in 1 (16.7%) case of trial of scar out of 6 cases. These lines have been drawn in 30 (36.1%) cases among 83 uncomplicated deliveries.

## 5. DISCUSSION

Overall completion of the partogram (to pre-defined standards) is poor, which is likely to impact on the utility of the tool in clinical practice. In previous studies the sections of the partogram which are most likely to be completed are those relating to progress such as cervical dilatation and relating to fetal wellbeing such as fetal heart rate.<sup>13,14</sup> In our study cervical dilatation at initial cervical assessment was documented in 94 (77.7%) cases. But proper documentation of cervical dilatation throughout labour was seen only in 50 (41.4%) cases. However, fetal heart rate was properly documented in 99 (81.8%) cases. Documentation of details during second stage of labour was very unsatisfactory and it was 100% not documented. Monitoring and documentation of maternal vital signs are also equally important and here it is lacking.

The partogram does appear to work as a trigger for referral and transfer, which is one of its primary purposes.<sup>12</sup> However, evidences related to other types of decision-making, such as augmentation of labour, based on partogram findings are limited. In 1994 a prospective non-randomised multicenter study in South East Asia conducted by WHO has recommended its universal application as a necessary tool in the management of labour.<sup>12</sup> There is also evidence from observational studies to suggest that midwives find the partogram to have practical benefits in terms of ease of use, time resourcefulness, continuity of care and educational assistance.<sup>8</sup> However, maintaining partograms may restrict clinical practice and reduce midwife's autonomy. Also there is a concern that partograms can create unnecessary interference.<sup>15</sup> In our study, neonatal outcome was satisfactory. However standard documentation of partogram was significantly poor.

Although WHO has recommended its universal use, latest Cochrane review in 2013 has concluded that overall use of the partogram did not significantly impact on a number of perinatal and maternal outcomes.<sup>17</sup> This conclusion was based on six randomized trials from both high and low resource settings.<sup>1</sup> Cochrane review has also acknowledged that possible that partograms may be useful in settings with poorer access to healthcare resources, as studies in Mexico and Africa also showed some reduction in caesarean section rates with partogram use and early intervention for delayed progress in labour.<sup>1,16,17</sup> Furthermore, there has been evidence from non-randomised trials conducted in poor resource settings with potential benefits of partogram use.<sup>7,18,19</sup> Therefore, we can conclude that use of partogram can be considered as a necessary tool in routine labor ward protocol in poor resource settings. We used newly modified Sri Lankan version of na-

tional partogram.<sup>20</sup> This too shows non-compliance in completing the partogram according to above results. Therefore, proper training with behavioral interventions may result in a good outcome in its use and maintenance.

We conducted this audit in a tertiary care setting where a well-trained staff and several consultants and residents are working. As limitations, we would have received a different outcome if we conducted in a primary/secondary care setting too and these results are not generalizable. These primary and secondary centers in Sri Lanka might be the settings where the use of partogram has more applicability. After this audit we have conducted a specific seminar to labour ward staff using the partogram training module prepared by Sri Lanka College of Obstetricians and Gynaecologists (SLCOG) in local language and English language.<sup>21</sup>

## 6. CONCLUSIONS

Although neonatal outcome is satisfactory, standard documentation of partograms is poor. This needs to be improved by thorough education and frequent auditing. Heavy workload and lack of staff might have influenced the outcome. However the results indicate substandard maintenance.

### Conflict of interests

Authors have no conflicts of interests and no funding sources available.

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