

Original Research Article

Completeness of national partogram documentation and intrapartum monitoring at Base Hospital Muthur, Sri Lanka: a retrospective clinical audit

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ABSTRACT

Background: Accurate intrapartum documentation supports continuity of care, recognition of abnormal labour, and timely clinical decision-making. This clinical audit assessed the completeness of partogram documentation and selected maternal and fetal monitoring parameters in a base hospital in Sri Lanka.

Methods: A retrospective clinical audit was conducted using 48 bed-head tickets of women managed in the labour ward of Base Hospital Muthur. Twenty documentation and monitoring criteria were assessed using a structured data-extraction checklist. A tick was coded as documented and an X as not documented. We calculated descriptive statistics at the item and record levels and examined exploratory associations.

Results: The mean maternal age was 25.85 years (standard deviation 5.69; range 17-38). Across 960 item-record observations, 904 were documented, giving an overall completeness of 94.2%. Complete documentation was observed for 10 of the 20 assessed criteria. The main gaps were caput and moulding, each documented in 28/48 records (58.3%), commencement of pushing in 42/48 (87.5%), and vaginal examination at the specified interval in 44/48 (91.7%). Twenty-seven records (56.3%) were complete for all 20 criteria, and 41/48 (85.4%) achieved at least 90% completeness. Caput and moulding accounted for 40/56 (71.4%) of all missing entries.

Conclusions: Partogram-related documentation was generally high, but deficiencies were concentrated in a small number of labour-assessment components, particularly caput and moulding. Targeted reinforcement of these elements, clarification of clinically conditional criteria, and re-audit after corrective measures are recommended.

Keywords: Partogram, Clinical audit, Intrapartum monitoring, Sri Lanka

INTRODUCTION

Systematic monitoring during labour is central to safe maternity care. A structured labour record provides a contemporaneous summary of maternal condition, fetal wellbeing, labour progress, and interventions and supports communication and escalation when abnormalities arise. The World Health Organization (WHO) has emphasized regular assessment, documentation, and clinical decision-making during labour.¹

Its Labour Care Guide subsequently updated the traditional WHO partogram in line with contemporary evidence on labour progression and person-centred care.²

In Sri Lanka, the official term is “National Partogram.” Ministry of Health General Circular No. 01-36/2024 mandates full and proper implementation of the National Partogram (H 1255) in all healthcare institutions conducting deliveries and specifically requires monthly clinical audits of its use.³

The usefulness of a partogram depends not merely on the presence of the form but on timely and complete recording of clinically relevant observations. Studies from low- and middle-income settings have demonstrated incomplete documentation of fetal, maternal, and labour-progress parameters, with moulding, descent, maternal observations, and other components among the frequently omitted items.^{4,7} Barriers to effective partogram use include workload, gaps in knowledge and training, supervision, availability of documentation tools, and organizational factors.⁸

Evidence on partograph use and effectiveness is nuanced. A Cochrane review found insufficient evidence to establish clear benefits of routine partograph use for maternal and neonatal outcomes, while a realist review highlighted the importance of clinical context, staff competence, and health-system support for effective use.^{9,10}

Systematic reviews of partograph utilization in Ethiopia and Sub-Saharan Africa further emphasize variation in use and the relevance of training and supportive supervision.^{11,12}

In Sri Lanka, labour monitoring is an established component of maternity care, and national professional guidance addresses the management of normal labour.¹³

Local clinical audit can identify specific documentation gaps that may not be apparent from aggregate service statistics. This audit therefore assessed the completeness of partogram-related documentation at Base Hospital Muthur and identified components requiring targeted quality-improvement attention.

METHODS

Study design and setting

This was a retrospective clinical audit of maternity records from the labour ward of Base Hospital Muthur, Trincomalee District, Sri Lanka, covering 1 August 2026 to 30 September 2026. Routinely documented information in bed-head tickets and the labour-monitoring partogram was reviewed. The audit was framed against Sri Lanka's national requirement for proper use and monthly clinical audit of the National Partogram (H 1255).³

Records and data collection

A total of 48 bed-head tickets available in the audit dataset were reviewed. The structured extraction form included demographic and clinical record fields, along with 20 partogram and intrapartum-monitoring criteria. Entries marked with a tick were coded as documented (Yes), whereas entries marked X were coded as not documented (No). Patient names and other direct identifiers were not included in the analytical dataset.

Audit criteria

The assessed criteria covered vaginal examination, fetal heart monitoring during the first and second stages of labour, cardiotocography entry, liquor colour, uterine contractions, oxytocin dose or flow rate, cervical dilatation, abdominal and vaginal descent, partogram marking, fetal position, caput, moulding, time of full cervical dilatation, time of commencement of pushing, maternal pulse, blood pressure, and temperature. This audit evaluated documentation in the record; it did not independently verify whether an observation or intervention was performed at the documented time.

Statistical analysis

Categorical variables were summarized using frequencies and percentages. Continuous variables were summarized using mean, standard deviation, median, and range as appropriate. A record-level completeness score was calculated as the number of documented criteria out of 20. Overall completeness was calculated as number of documented item-record observations divided by the total number assessed ($48 \times 20 = 960$). Exploratory associations were interpreted cautiously because of small sample and audit design. Statistical significance considered at $p < 0.05$.

Ethical considerations

This retrospective clinical audit used secondary data extracted from existing bed-head tickets and National Partograms maintained at Base Hospital Muthur. The relevant hospital authority granted administrative clearance before data extraction. The audit involved review of existing clinical records only, with no patient contact or intervention.

Patient names, addresses, and other directly identifying information were not collected for analysis or reported in the manuscript. Record numbers were used only to distinguish source records during data extraction and were not reported in the study findings. Confidentiality was maintained throughout, and all results are presented in aggregate form.

RESULTS

Characteristics of the audited records

Forty-eight bed-head tickets were included. The mean maternal age was 25.85 years (SD 5.69), the median age was 26 years, and the range was 17-38 years. Thirty-six women (75.0%) were aged 20-34 years. Nineteen records (39.6%) contained an entry under special problems.

Completeness of individual documentation criteria

Across the 20 criteria and 48 records, 904 of 960 item-record observations were documented, corresponding to an overall completeness of 94.2%. Ten criteria were

documented in all 48 records. The most prominent gaps were caput and moulding, each documented in only 28 records (58.3%). Time of commencement of pushing was

documented in 42 records (87.5%), and vaginal examination at the specified interval was documented in 44 records (91.7%).

Table 1: Characteristics of the audited maternity records.

Characteristics	N (%) or summary
Number of records	48
Age, mean (SD), (in years)	25.85 (5.69)
Age, median (range), (in years)	26 (17-38)
≤19	8 (16.7)
20-34	36 (75.0)
≥35	4 (8.3)
Blood group	
O+	24 (50.0)
B+	18 (37.5)
A+	4 (8.3)
AB+	2 (4.2)
Special problem recorded	19 (39.6)

Table 2: Completeness of partogram and intrapartum monitoring documentation.

Criteria	Documented N (%)	Not documented N (%)
Vaginal examination (preferably four-hourly)	44 (91.7)	4 (8.3)
Fetal heart monitoring-active first stage, every 15 minutes	47 (97.9)	1 (2.1)
Fetal heart monitoring-second stage, every five minutes	48 (100.0)	0 (0.0)
Cardiotocography entry	48 (100.0)	0 (0.0)
Liquor colour	48 (100.0)	0 (0.0)
Contraction-free interval / contractions	47 (97.9)	1 (2.1)
Oxytocin dose/flow rate	47 (97.9)	1 (2.1)
Cervical dilatation	48 (100.0)	0 (0.0)
Abdominal descent	48 (100.0)	0 (0.0)
Partogram marked	48 (100.0)	0 (0.0)
Partogram properly marked	47 (97.9)	1 (2.1)
Vaginal descent	47 (97.9)	1 (2.1)
Position	47 (97.9)	1 (2.1)
Caput	28 (58.3)	20 (41.7)
Moulding	28 (58.3)	20 (41.7)
Time of full cervical dilatation	48 (100.0)	0 (0.0)
Time of commencement of pushing	42 (87.5)	6 (12.5)
Maternal pulse-half-hourly	48 (100.0)	0 (0.0)
Blood pressure-four-hourly	48 (100.0)	0 (0.0)
Temperature-hourly	48 (100.0)	0 (0.0)

Record-level completeness

The mean record-level completeness score was 18.83/20 (SD 1.72), equivalent to 94.2%, and the median was 20/20. Twenty-seven records (56.3%) contained all 20 assessed entries. Forty-one records (85.4%) achieved at least 90% completeness.

Of the 56 missing item-record entries, 40 (71.4%) were attributable to caput and moulding alone. When these two items were excluded, 848 of 864 remaining observations were documented (98.1%).

Exploratory analysis

Maternal age was not meaningfully associated with the documentation score (Spearman's $\rho=0.090$, $p=0.544$). Records containing a special-problem entry had a lower mean completeness score (18.11/20) than records without such an entry (19.31/20); an exploratory Welch t-test yielded $p=0.006$.

Because the special-problems category was heterogeneous and the sample was small, this finding should be considered hypothesis-generating rather than evidence of a causal relationship.

Table 3: Distribution of record-level documentation completeness.

Completeness category	Records, N (%)
100% (20/20)	27 (56.3)
90-99%	14 (29.2)
80-89%	5 (10.4)
<80%	2 (4.2)
≥90% overall	41 (85.4)

DISCUSSION

This audit found a high overall level of partogram-related documentation at Base Hospital Muthur. More than nine-tenths of all assessed entries were present, more than half of the records were complete for all 20 criteria, and 85.4% achieved at least 90% completeness. The principal quality-improvement finding was that missing documentation was strongly concentrated in a small number of components, particularly caput and moulding.

Documentation of cervical dilatation, abdominal descent, second-stage fetal heart monitoring, and maternal vital signs was complete in this dataset, whereas caput and moulding were each recorded in only 58.3% of records. Similar studies have identified moulding as a commonly omitted partogram component. A retrospective review from Bale Zone, Ethiopia, found particularly low documentation for moulding and several other labour parameters.⁴ Studies from Addis Ababa, Ethiopia, and Malawi have likewise described variable completeness across individual partogram components.^{5,7} A national Ethiopian analysis also identified moulding among the less completely recorded components.⁶ Direct comparison of percentages is limited by differences in tools, definitions, staffing, and clinical settings.

The findings should also be interpreted in the context of evolving intrapartum-care guidance. The WHO Labour Care Guide emphasizes repeated assessment, recording, threshold recognition, and clinical decision-making rather than mechanical completion of a chart.² WHO guidance also cautions against using a fixed cervical dilatation rate of 1 cm/hour as a stand-alone trigger for intervention.¹ Therefore, the objective of documentation improvement should be an accurate contemporaneous clinical record that supports safe care rather than completion for its own sake.

Evidence from a cross-sectional study of obstetric care providers in eastern Ethiopia also links partograph utilization with service and provider factors.¹⁴ More recently, the International Federation of Gynecology and Obstetrics (FIGO) endorsed the WHO Labour Care Guide as an updated framework for labour monitoring.¹⁵ These findings support distinguishing documentation completeness from the clinical appropriateness and use of individual monitoring components.

The apparently complete documentation of cardiotocography and very high documentation of oxytocin require particular caution. These interventions are not necessarily indicated for every woman in labour. Future audit tools should therefore include a 'not applicable/not indicated' response and use clinically appropriate denominators. This would distinguish a true documentation omission from a situation in which an intervention was not required.

The exploratory finding of lower completeness in records with a documented special problem may reflect clinical complexity, competing tasks during higher-risk care, or differences in applicability of individual checklist items. It should not be interpreted as evidence that women with complications received poorer monitoring. A larger re-audit with predefined risk categories and applicability rules would be required to examine this question.

Limitations

This was a small, single-centre retrospective audit and therefore has limited generalizability. Documentation cannot establish that monitoring was performed at the correct time or that entries were contemporaneous. The binary Yes/No extraction format did not consistently distinguish 'not documented' from 'not clinically applicable,' which is particularly relevant to conditional items such as cardiotocography and oxytocin. Patient outcomes were not available for correlation with documentation completeness. Consequently, the findings assess documentation quality and should not be interpreted as a direct measure of the overall quality or safety of clinical care.

Quality-improvement implications

The concentration of omissions in a small number of criteria makes a focused intervention feasible. Labourward staff can be reminded to document caput and moulding when clinically assessed and to record the time of commencement of pushing. A brief staff discussion, visual reminder, or checklist prompt could be implemented. A subsequent re-audit using the same core indicators, with a 'not applicable/not indicated' option for conditional criteria, would allow completion of the audit cycle and measurement of improvement.

CONCLUSION

Partogram-related documentation in the audited maternity records was generally high. Most records achieved at least 90% completeness, but omissions were concentrated mainly in caput and moulding, which together accounted for more than 70% of all missing entries.

A targeted quality-improvement intervention addressing these specific elements, followed by re-audit using clearly defined applicability criteria, is a practical next step. Future audits should distinguish missing documentation

from observations or interventions that were not clinically indicated.

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