



WHO LABOUR CARE GUIDE FOR INTRAPARTUM MONITORING AT GMCH CHHATRAPATI SAMBHAJINAGAR: LABOUR OUTCOMES AND MATERNAL EXPERIENCE

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ABSTRACT **Background:** The World Health Organization Labour Care Guide (LCG) was introduced to translate contemporary intrapartum care recommendations into a structured, woman-centred monitoring tool. Evidence on its real-world use in high-volume Indian public hospitals remains limited. **Objective:** To describe labour progress, supportive care, maternal satisfaction, mode of delivery, and immediate maternal and neonatal outcomes among low-risk term women monitored with the WHO Labour Care Guide. **Study Design:** This prospective observational study was conducted in the Department of Obstetrics and Gynaecology, Government Medical College and Hospital, Chhatrapati Sambhajanagar, Maharashtra, from April 2024 to March 2026. Consecutive low-risk pregnant women admitted in spontaneous active labour at term were enrolled after written informed consent. Active labour was defined as cervical dilatation of 5 cm or more with regular uterine contractions. A total of 380 women were monitored prospectively using the WHO Labour Care Guide. **Results:** Women aged 21-25 years constituted 40.3% of the cohort, and primigravida women constituted 50.3%. A birth companion was present in 296 women (77.9%). The mean active first-stage duration was longer in primigravida women than in multigravida women (6.58 +/- 1.51 vs 4.32 +/- 1.19 hours; $P < .001$), and the mean second-stage duration was also longer (44.3 +/- 15.16 vs 19.93 +/- 7.98 minutes; $P < .001$). Labour Care Guide alerts were triggered in 109 women (28.7%), and augmentation was required in 127 women (33.4%). Normal vaginal delivery occurred in 279 women (73.4%), instrumental delivery in 25 (6.6%), and cesarean delivery in 76 (20.0%). Postpartum hemorrhage occurred in 16 women (4.2%), and blood transfusion was required in 19 (5.0%). All neonates were live born. Neonatal resuscitation was required in 23 neonates (6.0%), and NICU admission in 30 (8.0%). **Conclusion:** The WHO Labour Care Guide was feasible for structured intrapartum monitoring in a high-volume tertiary government hospital and supported systematic documentation of labour progress, supportive care, alert-threshold crossing, and immediate maternal and neonatal outcomes.

KEYWORDS : WHO Labour Care Guide; Intrapartum Care; Labour Monitoring; Birth Companion; Maternal Satisfaction; Cesarean Delivery; Neonatal Outcome

INTRODUCTION

Intrapartum monitoring is central to safe childbirth because timely recognition of abnormal labour progress, maternal compromise, and fetal compromise can guide escalation without exposing women to unnecessary intervention. Conventional partograph-based monitoring improved documentation of labour for several decades; however, its dependence on a fixed cervical dilatation rate and variable completion in routine practice has been criticized. The World Health Organization subsequently reframed intrapartum care around safety, respect, communication, companionship, mobility, oral intake, and shared decision-making.¹

The WHO Labour Care Guide was developed as the next-generation partograph to operationalize evidence-based recommendations for a positive childbirth experience.² It begins active labour documentation at 5 cm cervical dilatation and uses specific alert thresholds for maternal condition, fetal condition, labour progress, medication, supportive care, and decision-making. The tool follows an assess-record-check-plan approach and shifts the emphasis from rigid time rules to individualized assessment.^{2,3}

Contemporary evidence indicates that normal labour progress is variable, particularly before advanced cervical dilatation, and that a universal 1 cm/hour expectation may lead to premature diagnosis of dystocia.³ The Labour Care Guide therefore has relevance in settings where high delivery load, documentation pressure, and medicolegal concerns can influence decisions regarding augmentation and operative delivery. In addition, its supportive care domain provides a structured place to record companionship, pain relief, posture, mobility, oral intake, and communication.

Evidence from India and other settings suggests that the Labour Care Guide is acceptable and may help rationalize intrapartum interventions, but real-world observational data from high-volume public hospitals remain important for implementation planning.^{4,7} The

present study aimed to describe labour progress, supportive care, maternal satisfaction, mode of delivery, and immediate maternal and neonatal outcomes among women monitored with the WHO Labour Care Guide at a tertiary hospital.

MATERIALS AND METHODS

Study Design and Setting. This was a prospective observational study conducted in the Department of Obstetrics and Gynaecology, Government Medical College and Hospital, Chhatrapati Sambhajanagar, Maharashtra, India. The study period was 2 years, from April 2024 to March 2026. The hospital is a high-volume tertiary government referral centre where the WHO Labour Care Guide has been incorporated into routine labour-room practice.

Study Population and Sample Size. The study population consisted of low-risk pregnant women admitted in spontaneous active labour for institutional delivery. Active labour was defined as cervical dilatation of 5 cm or more with regular uterine contractions, in accordance with the WHO Labour Care Guide. Consecutive eligible women were enrolled after labour-room admission. A total of 380 women were included in the final analysis.

Eligibility Criteria. Inclusion criteria were spontaneous active labour, term gestation between 37 and 40 weeks, singleton pregnancy, cephalic presentation, cervical dilatation of 5 cm or more at enrolment, monitoring with the WHO Labour Care Guide, willingness to participate, and written informed consent. Exclusion criteria were absence of active labour criteria, gestational age below 37 weeks or beyond the study criterion, multiple pregnancy, malpresentation, high-risk pregnancy requiring individualized intensive monitoring beyond routine LCG use, intrauterine fetal death at admission, and refusal of consent.

Study Procedure. Before data collection, labour-room doctors, residents, nurses, and interns involved in intrapartum monitoring were oriented to the WHO Labour Care Guide. Training covered identification of active labour, correct recording of maternal and fetal parameters, documentation of supportive care, recognition of alert thresholds, and

recording of assessment and management plans. The LCG was completed prospectively during labour by the attending labour-room team and reviewed by the supervising obstetrician whenever an alert threshold was reached or clinical concern was identified.

Outcome Measures. Maternal monitoring included pulse, blood pressure, temperature, uterine contractions, urine findings where applicable, oral fluid intake, pain relief, mobility, posture, intravenous fluids, and medication. Fetal and neonatal variables included fetal heart rate, fetal heart rate abnormalities, liquor status, fetal position, caput, moulding, Apgar scores at 1 and 5 minutes, neonatal resuscitation, NICU admission, and immediate neonatal outcome. Labour progress variables included serial cervical dilatation, descent of the presenting part, active first-stage duration, second-stage duration, alert-threshold crossing, augmentation, oxytocin use, mode of delivery, and indication for operative delivery. Supportive care variables included birth companion, oral intake, posture, mobility, pain relief, communication, shared decision-making, and maternal satisfaction. Maternal satisfaction was assessed after delivery using a 5-point Likert-type scale, where 1 indicated very dissatisfied and 5 indicated very satisfied.

Statistical Analysis. Data were entered into a preformed database and analyzed using SPSS version 26.0 or equivalent software. Continuous variables were summarized as mean $\pm$ standard deviation. Categorical variables were expressed as frequency and percentage. Associations between Labour Care Guide parameters and outcomes were tested using the chi-square test for categorical variables and the Student t test or Mann-Whitney U test for continuous variables, as appropriate. A P value of $<.05$ was considered statistically significant.

Ethical Approval. Institutional Ethics Committee approval was obtained before study commencement. Written informed consent was obtained from all participants, and confidentiality of participant data was maintained.

The image shows the WHO Labour Care Guide form, which is a structured template for recording labour progress and maternal/fetal status. It is divided into seven main sections:

- Section 1:** Header information including Name, Parity, Labour onset, and Active labour diagnosis.
- Section 2:** Alert column with a timeline for recording alerts during the active first stage and second stage.
- Section 3:** Maternal characteristics including temperature, pulse, blood pressure, and respiratory rate.
- Section 4:** Fetal characteristics including fetal heart rate, fetal position, and liquor status.
- Section 5:** Labour progress including cervical dilatation, descent of the presenting part, and duration of labour stages.
- Section 6:** Delivery outcomes including mode of delivery, neonatal resuscitation, and Apgar scores.
- Section 7:** Maternal satisfaction and other relevant information.

RESULTS

A total of 380 low-risk term pregnant women admitted in spontaneous active labour were enrolled and monitored using the WHO Labour Care Guide. Baseline characteristics are summarized in Table 1. Women aged 21-25 years constituted the largest age stratum, and primigravida women accounted for approximately half of the cohort.

Table 1 Baseline Characteristics of the Study Population

Characteristic	Category	n	%
Age group	18-20 years	104	27.4
	21-25 years	153	40.3
	26-30 years	107	28.2
	31-35 years	16	4.2
	≥ 36 years	0	0.0

Obstetric status	Primigravida	191	50.3
	Gravida 2	128	33.7
	Gravida 3	61	16.1
Gestational age	37- $<$ 38 weeks	97	25.5
	38- $<$ 39 weeks	173	45.5
	39- $<$ 40 weeks	95	25.0
	≥ 40 weeks	15	3.9

All participants were enrolled after reaching the active labour criterion of cervical dilatation ≥ 5 cm. LCG alerts were triggered in 109 women (28.7%). Fetal heart rate abnormality and cervical progress alert were the two most frequently recorded alert parameters (Table 2).

Table 2 Labour Monitoring Characteristics and LCG Alert Profile

Parameter	Category	n	%
Labour status at enrolment	Spontaneous active labour	380	100.0
Cervical dilatation criterion	≥ 5 cm	380	100.0
LCG alert	Triggered	109	28.7
	Not triggered	271	71.3
Alert parameter	Fetal heart rate	40	10.5
	Cervical progress	35	9.2
	Blood pressure	13	3.4
	Uterine contractions	12	3.2
	Liquor abnormality	9	2.4

LCG, Labour Care Guide.

Birth companion presence showed a statistically significant association with maternal satisfaction score (Table 3).

Table 3 Association Between Birth Companion and Maternal Satisfaction Score

Birth companion	Score 1	Score 2	Score 3	Score 4	Score 5	Total
Present	0	0	57	125	114	296
Absent	13	24	29	18	0	84
Total	13	24	86	143	114	380

Chi-square test; $P < .001$.

Table 4 Labour Progress Parameters According to Parity

Parameter	Primigravida	Multigravida	Overall	P value
Active first stage duration, h	6.58 $\pm$ 1.51	4.32 $\pm$ 1.19	5.46 $\pm$ 1.77	$<.001$
Second stage duration, min	44.3 $\pm$ 15.16	19.93 $\pm$ 7.98	32.18 $\pm$ 17.2	$<.001$

Values are mean $\pm$ standard deviation. P values were calculated using the Student t test or Mann-Whitney U test, as appropriate.

Normal vaginal delivery occurred in 279 women (73.4%). Instrumental delivery was required in 25 women, and cesarean delivery was performed in 76 women (Table 5).

Table 5 Mode of Delivery and Obstetric Interventions

Mode of delivery/intervention	n	%
Normal vaginal delivery	279	73.4
Instrumental delivery	25	6.6
Forceps delivery	2	0.5
Vacuum delivery	23	6.1
Cesarean delivery	76	20.0
Labour augmentation	127	33.4

Denominator for percentages: $n = 380$.

Maternal and neonatal outcomes are shown in Table 6. Postpartum hemorrhage occurred in 16 women, and blood transfusion was required in 19. All neonates were live born. Mean Apgar score improved between 1 and 5 minutes (Table 6).

Table 6 Maternal and Neonatal Outcomes

Outcome	n or mean $\pm$ SD	%
Postpartum hemorrhage	16	4.2
Blood transfusion	19	5.0
Live birth	380	100.0
Neonatal resuscitation	23	6.0

NICU admission	30	8.0
Low birth weight	76	20.0
Apgar score at 1 min	6.98 +/- 1.12	
Apgar score at 5 min	8.09 +/- 0.86	

NICU, neonatal intensive care unit; SD, standard deviation.

DISCUSSION

This prospective observational study describes routine use of the WHO Labour Care Guide among low-risk term women in spontaneous active labour at a high-volume tertiary government hospital. The cohort represented the usual reproductive age profile of institutional deliveries, with approximately half of women being primigravida. This is clinically relevant because primigravida labour requires careful assessment and has a greater likelihood of prolonged labour duration than multigravida labour.

Labour duration differed significantly by parity, with longer active first-stage and second-stage durations in primigravida women. This observation is consistent with the contemporary understanding that labour progress is variable and that a fixed 1 cm/hour threshold does not adequately represent normal physiology.³ By beginning active labour documentation at 5 cm cervical dilatation and using stage-specific alert thresholds, the Labour Care Guide helps avoid premature labeling of slow progress while preserving the opportunity for timely review when alert thresholds are crossed.^{2,4}

Birth companion presence was recorded in more than three-fourths of women and was significantly associated with higher maternal satisfaction. Continuous support during labour has been shown to improve women's childbirth experience and increase the likelihood of spontaneous vaginal birth.⁸ The Labour Care Guide strengthens this domain by making companionship and other supportive care elements part of routine documentation rather than optional narrative notes. This is particularly important in busy labour rooms where respectful maternity care practices can otherwise be inconsistently recorded.

LCG alerts were triggered in 28.7% of women and were significantly associated with mode of delivery. The most frequently observed alert parameters were fetal heart rate abnormality and cervical progress alert. This finding should be interpreted as evidence of clinical stratification rather than as a direct causal effect of the LCG on operative delivery. The LCG does not mandate immediate intervention; instead, it prompts reassessment, senior review, and individualized planning based on maternal and fetal condition.²

Labour augmentation was required in one-third of women and was significantly associated with mode of delivery. In the context of the Labour Care Guide, augmentation is expected to be linked to clinical findings such as delayed progress or inadequate uterine activity rather than empirical use. Randomized and implementation studies have reported that the Labour Care Guide may reduce unnecessary intervention and cesarean delivery in selected settings, although effects depend on study design, baseline practices, training, and institutional protocols.^{6,7}

The cesarean delivery rate in the present cohort was 20.0%, while normal vaginal delivery occurred in nearly three-fourths of women. Because the present study did not include a conventional partograph comparison arm, it cannot claim that the LCG reduced cesarean delivery. The appropriate interpretation is that the LCG provided a structured framework for monitoring labour progress, identifying alert conditions, documenting supportive care, and supporting clinical decision-making in women who reached active labour.

Maternal complications were infrequent in this low-risk cohort, with postpartum hemorrhage and blood transfusion recorded in a small proportion of women. The Labour Care Guide includes repeated maternal vital sign monitoring and alert thresholds for pulse, blood pressure, temperature, urine findings, and clinical concern. These components align with WHO quality-of-care standards emphasizing timely recognition, documentation, escalation, and respectful communication during facility-based childbirth.¹⁰

Immediate neonatal outcomes were reassuring, with all neonates live born and mean Apgar scores improving from 1 to 5 minutes. Neonatal resuscitation and NICU admission were required in a limited proportion of neonates. These findings document immediate outcomes only; they should not be interpreted as evidence of long-term neonatal

benefit. The fetal monitoring components of the LCG remain valuable because fetal heart rate, liquor, caput, moulding, and progress parameters are assessed together rather than in isolation.

Overall, the present study supports feasibility of the WHO Labour Care Guide in a high-volume public-sector labour room. Its implementation value lies in structured documentation, parity-sensitive interpretation of labour progress, incorporation of supportive care, and clear identification of alert thresholds. Wider use should be accompanied by structured staff training, periodic documentation audit, senior-review pathways for alerts, and continuous monitoring of maternal and neonatal indicators.

Strengths

The strengths of this study include its prospective observational design, use of the WHO Labour Care Guide in routine labour-room practice, and assessment of labour progress, supportive care, maternal satisfaction, mode of delivery, and immediate maternal and neonatal outcomes in the same cohort. The study reflects real-world implementation in a high-volume tertiary government hospital, which increases practical relevance for similar public-sector settings.

Limitations

The limitations include single-centre design and restriction to low-risk term pregnancies. The implementation of the WHO Labour Care Guide required continuous monitoring and detailed documentation, which may be challenging in high-volume labour rooms with limited staffing and heavy workload. Long-term maternal and neonatal outcomes were not assessed.

CONCLUSION

The WHO Labour Care Guide was feasible for structured intrapartum monitoring among low-risk term women admitted in spontaneous active labour at a high-volume tertiary government hospital. It enabled systematic documentation of labour progress, maternal and fetal parameters, supportive care, birth companion presence, alert-threshold crossing, mode of delivery, and immediate outcomes. Primigravida women had longer active first-stage and second-stage durations than multigravida women. Birth companion presence was significantly associated with higher maternal satisfaction. LCG alerts and augmentation were significantly associated with mode of delivery, supporting their role as clinical markers requiring review and individualized management. The findings support the Labour Care Guide as a woman-centred and documentation-friendly tool for routine intrapartum care. Multicentric comparative studies are needed to evaluate its effect on intervention rates and maternal and neonatal outcomes across different levels of care.

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