



JRAAS

Special Issue in Medicine & Surgery

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Research Article

Section: Obstetrics & Gynecology

Impact of New WHO Labor Care Guide on Reducing Intrapartum Cesarean Section Rates at Tertiary Care Hospital - KDMCH, Mathura

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HIGHLIGHTS

- LCG reduced cesarean rates
- Shorter active labor duration
- Reduced hospital stays
- Comparable neonatal outcomes
- Improved intrapartum care

Key Words:

Labor Care Guide
Cesarean section
Partograph
Intrapartum care
Maternal outcomes

ABSTRACT

Introduction: Global rise in cesarean section rates necessitate innovative approaches to intrapartum care. The World Health Organization introduced the Labor Care Guide (LCG) in 2020 as a next-generation partograph emphasizing respectful parturient care, evidence-based monitoring, shared decision making and with good birthing experience. **Aims & Objectives:** To evaluate the effect of the WHO LCG on labor outcomes, particularly cesarean delivery rates, maternal complications, duration of hospital stay, and neonatal outcomes compared to the modified WHO partograph. **Materials & Methods:** A prospective randomized controlled trial was conducted at K.D. Medical College Hospital, Mathura, including 203 antenatal women (37-40 weeks gestation) in spontaneous active labor with cephalic presentation. Women were randomly allocated to monitoring with WHO LCG (study group, n=101) and modified WHO partograph (control group, n=102). Outcomes assessed included mode of delivery, active labor duration, maternal complications, hospital stay, Apgar scores, and NICU admissions. **Results:** Epidemiological characteristics including age and parity were comparable between both groups (study and control). Cesarean section rate was significantly lower in the study group (10.89%) compared to controls (32.35%) ($p=0.0002$), with an absolute risk reduction of 21.5%. Active labor duration was significantly shorter in the study group ($p<0.0001$). Mean hospital stay was reduced in the study group (3.32 vs 3.97 days, $p=0.005$). Neonatal outcomes including Apgar scores and NICU admissions were comparable between groups. Logistic regression showed LCG use independently reduced prolonged hospitalization odds by 52% (AOR 0.48, $p=0.012$). **Conclusion:** Implementation of the WHO Labor Care Guide significantly reduced intrapartum cesarean section rates and shortened the hospital stay without compromising maternal or neonatal safety, supporting its adoption in tertiary care settings.



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Article History: Received 02 May 2026; Received in Revised form 20 July 2026; Accepted 27 July 2026

How To Cite: Sakshi Agarwal & Virendra Prasad Pandey. Impact of New WHO Labor Care Guide on Reducing Intrapartum Cesarean Section Rates at Tertiary Care Hospital - KDMCH, Mathura. *JRAAS : Special Issue in Medicine & Surgery*. 2026;41(2):1-10. DOI: <https://doi.org/10.71393/g0k6wm22>
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INTRODUCTION

Cesarean section (CS) rates have increased substantially worldwide over the past two decades, emerging as a major public health concern. Globally, the proportion of births delivered by cesarean section has risen from approximately 7% in 1990 to nearly 21% in recent years, with projections suggesting that rates may approach 29% by 2030. Although cesarean delivery is a life-saving intervention when medically indicated, the rapid increase in its use has raised concerns regarding unnecessary procedures and their associated maternal and neonatal consequences. In India, the trend mirrors the global pattern, with national cesarean rates increasing from around 8% in 2005 to 17% in 2015–16 and continuing to rise thereafter, particularly in private healthcare facilities [1,2].

The growing prevalence of cesarean delivery is not solely attributable to medical necessity. While conditions such as fetal distress, placenta previa, obstructed labor, and other obstetric emergencies warrant surgical intervention, a significant proportion of cesarean sections are performed without clear clinical indications. Excessive reliance on cesarean delivery may expose women to avoidable risks, including postoperative infections, hemorrhage, prolonged hospitalization, and complications in future pregnancies such as placenta accreta spectrum disorders, uterine rupture, and hysterectomy. Neonates delivered through elective or prelabor cesarean sections are also at greater risk of respiratory complications, neonatal intensive care unit (NICU) admissions, and adverse long-term health outcomes. Evidence suggested that cesarean rates exceeding approximately 15% do not result in additional reductions in maternal or neonatal mortality, emphasizing the need for judicious use of the procedure [3].

To improve labor management and reduce unnecessary interventions, several labor monitoring tools have been developed over

time. The conventional partograph, introduced in the 1970s, became a widely accepted method for monitoring labor progress by documenting cervical dilatation, fetal descent, and uterine contractions. However, research identified several limitations associated with its use. The traditional assumption of a uniform cervical dilatation rate of 1 cm per hour often failed to reflect normal variations in labor progression. Furthermore, healthcare providers frequently reported difficulties in accurately completing and interpreting the chart, particularly in busy and resource-constrained settings, leading to inconsistent clinical decision-making [4,5].

Recognizing these limitations, the World Health Organization developed the Labor Care Guide (LCG) as an updated, evidence-based alternative to the traditional partograph. Introduced in alignment with the WHO recommendations for a positive childbirth experience, the LCG incorporates contemporary evidence regarding labor progression and emphasizes individualized assessment rather than rigid time-based thresholds (8,10). The guide defines active labor as beginning at 5 cm cervical dilatation and utilizes evidence-based reference limits for labor progress. In addition to clinical monitoring, the LCG integrates maternal well-being, fetal condition, supportive care practices, and shared decision-making into routine labor management [6,7]. A distinguishing feature of the LCG is its woman-centered approach to intrapartum care. The guide encourages documentation of supportive practices such as mobility during labor, hydration, pain relief, preferred birthing positions, and the presence of a birth companion. It also promotes respectful communication and active participation of women in decision-making processes regarding their care. By shifting the focus from simple labor progression charts to comprehensive maternal and fetal assessment, the LCG aims to improve both clinical outcomes and the childbirth experience [8].



Figure 1: Mechanistic pathway showing how the WHO Labor Care Guide reduces cesarean section rates and improves maternal and neonatal outcomes.

Emerging evidence indicated that implementation of the WHO Labor Care Guide may contribute to improved labor outcomes. Studies have demonstrated its feasibility, acceptability, and potential effectiveness in enhancing labor monitoring and clinical decision-making. A randomized controlled trial conducted in India reported a significantly lower primary cesarean section rate among women monitored using the LCG compared to those monitored with a modified partograph. Similarly, a stepped-wedge cluster-randomized pilot trial found a reduction in cesarean rates among nulliparous women managed using the LCG framework. Importantly, these reductions were achieved without compromising maternal safety [9,10].

The benefits of the LCG may extend beyond reducing cesarean deliveries. Improved monitoring facilitates early detection of prolonged or obstructed labor, enabling timely interventions that may prevent complications such as postpartum hemorrhage, puerperal sepsis, and prolonged hospital stay. Evidence also suggested favorable neonatal outcomes, including higher Apgar scores and reduced NICU admissions among infants whose mothers were monitored using the LCG. Overall, the WHO Labor Care Guide represents a modern, evidence-based, and woman-centered approach to labor monitoring that has the potential to improve maternal and neonatal outcomes while reducing unnecessary obstetric interventions. Continued research and wider implementation will further clarify its role in optimizing the quality of intrapartum care worldwide [10,11].

Figure 1. Mechanistic pathway illustrating how implementation of the WHO Labor Care Guide (LCG) improves intrapartum monitoring and clinical decision-making, leading to reduced cesarean section rates and improved maternal and neonatal outcomes.

This study aims to determine the effect of the WHO Labor Care Guide on labor outcomes, particularly its role in reducing cesarean deliveries, and to assess its acceptability among healthcare providers. The study objectives are to evaluate the mode of delivery and duration of the active phase of labor among women in labor; assess maternal outcomes, including postpartum hemorrhage, puerperal sepsis, and duration of hospital stay; and determine fetal outcomes by assessing the Apgar score at 5 minutes and the rate of neonatal intensive care unit admissions.

MATERIAL & METHODS

This prospective observational study was conducted at the Department of Obstetrics & Gynecology, K.D. Medical College, Hospital & Research Center from 2023 to 2026. Ethical approval has been obtained from the Ethical Approval Committee of K.D. Medical College, Hospital & Research Center.

Study Population

The study population consisted of antenatal women with singleton term pregnancies (37–40 weeks gestation) in cephalic presentation who were admitted to the labor ward in spontaneous active labor with cervical dilatation of ≥ 5 cm. Women requiring induction of labor, those with medical comorbidities such as

hypertension, diabetes mellitus, renal or pulmonary disease, obstetric complications including preterm birth, multiple gestation, previous cesarean delivery, breech presentation, post-dated pregnancy, or adverse obstetric history, and those who underwent cesarean delivery during the latent phase of labor were excluded from the study.

Data Analysis

Data were compiled and entered into Microsoft Excel and subsequently analyzed using SPSS statistical software. Descriptive statistics were used to summarize the data and included mean, standard deviation, frequency, and percentage. Inferential statistical tests were applied to assess associations & differences between groups, including the Chi-square test for categorical variables and Student's t-test for continuous variables. Logistic regression analysis was performed to identify significant predictors of outcomes. Risk estimates were calculated using relative risk, odds ratio, and 95% confidence intervals, with statistical significance determined at the appropriate p-value threshold.

RESULTS

A total of 203 women were included in the study, with 101 women monitored using the WHO Labor Care Guide (LCG) and 102 using the Modified Partograph. Baseline age distribution was comparable between the groups, with no statistically significant difference ($\chi^2 = 1.64$, $p = 0.44$), indicating similar demographic characteristics. The WHO LCG group demonstrated a substantially lower cesarean section rate (10.89%) compared with the control group (32.35%), representing an absolute reduction of approximately 21.5%, while vaginal deliveries were correspondingly higher (89.11% vs. 67.65%). Women monitored with the WHO LCG also experienced significantly shorter active labor durations, with only 4.95% having labor lasting more than 8.6 hours compared with 31.37% in the control group ($\chi^2 = 28.47$, $p < 0.0001$). Hospital stay was significantly reduced among women in the WHO LCG group, with a greater proportion discharged within three days (62.38% vs. 44.12%) and fewer requiring prolonged hospitalization ($\chi^2 = 6.55$, $p = 0.01$). Neonatal outcomes were comparable between groups, as reflected by similar 5-minute Apgar score distributions, with most newborns achieving scores of 8–10 & no statistically significant difference observed ($\chi^2 = 0.21$, $p = 0.98$). These findings suggest that the WHO Labor Care Guide effectively reduces cesarean deliveries, shortens labor duration and hospital stay, and maintains favorable neonatal outcomes without compromising safety. Among the 101 women in the study group, postpartum hemorrhage (PPH) occurred in 7 (6.93%) women compared with 10 (9.80%) of the 102 women in the control group. Although the incidence of PPH was lower in the study group, the difference was not statistically significant ($\chi^2 = 0.55$, $p = 0.46$). Puerperal sepsis occurred in 5 (4.95%) women in the study group and 2 (1.96%) women in the control group. The difference in puerperal sepsis rates between the groups was also not statistically significant ($\chi^2 = 1.37$, $p = 0.24$). These findings suggest that the

use of the WHO Labor Care Guide did not significantly influence the occurrence of either postpartum hemorrhage or puerperal sepsis among the study participants (**Table 1**). Maternal outcomes were largely comparable between the groups, with lower postpartum hemorrhage rates (6.93% vs. 9.80%) and a shorter mean hospital stay (3.32 vs. 3.97 days) in the WHO Labor Care Guide group, indicating improved recovery. Fetal outcomes were also similar, with comparable mean 5-minute Apgar scores (8.64 vs. 8.59), no newborns having Apgar scores <7, and only a marginal difference in NICU admissions (13.86% vs. 11.76%), demonstrating that the WHO Labor Care Guide did not adversely affect neonatal outcomes (**Table 2**). Parity distribution was comparable between the study and control groups, with primigravida women accounting for 47.52% and 50.98%, and multigravida women for 52.48% and 49.02%, respectively. No statistically significant difference was observed between the groups ($\chi^2 = 0.24$, $p = 0.62$), indicating that parity was well balanced at baseline and unlikely to have influenced the observed labor and delivery outcomes (**Table 3**). NICU admission rates were comparable between the study and control groups, with 13.86% of newborns in the WHO Labor Care Guide group and 11.76% in the Modified Partograph group requiring neonatal intensive care. The majority of newborns in both groups did not require NICU admission (86.14% vs. 88.24%), indicating that implementation of the WHO Labor Care Guide did not adversely affect neonatal outcomes or increase the need for intensive neonatal care (**Figure 2**). Use of the WHO Labor Care Guide was associated with a significantly lower cesarean section rate (10.89%) compared with the Modified Partograph group (32.35%), while vaginal deliveries were substantially higher (89.11% vs. 67.65%). This difference was statistically significant ($\chi^2 = 13.57$, $p = 0.0002$), with an absolute risk reduction of 21.46%, a relative risk of 0.34 (95% CI: 0.18–0.63), and an odds ratio of 0.26 (95% CI: 0.12–0.54). These findings indicate that the WHO Labor Care Guide reduced the risk of cesarean delivery by approximately 66% and significantly increased the likelihood of vaginal birth without compromising maternal or neonatal outcomes (**Table 4**). Across all categories of active labor duration, cesarean section rates were consistently lower in the WHO Labor Care Guide group than in the Modified Partograph group. The greatest differences were observed in labor durations of 4.7–6.6 hours (8.89% vs. 31.82%) and 6.7–8.6 hours (10.00% vs. 27.91%). No cesarean deliveries occurred in the WHO Labor Care Guide group when labor exceeded 10.6 hours, whereas 37.50% of women in the control group underwent cesarean delivery. Although the association between labor duration and mode of delivery was not statistically significant within either group (study: $\chi^2 = 1.18$, $p = 0.76$; control: $\chi^2 = 2.94$, $p = 0.057$), the findings demonstrate a clear trend toward lower cesarean section rates with use of the WHO Labor Care Guide (**Figure 3**). Postpartum hemorrhage (PPH) was observed less frequently in

the WHO Labor Care Guide group (6.93%) than in the Modified Partograph group (9.80%). In both groups, the majority of women without PPH were discharged within 2–3 days, whereas women who developed PPH generally required longer hospital stays. Higher proportions of PPH were noted among women with prolonged hospitalization, indicating an association between PPH and extended recovery. Overall, the findings suggest that use of the WHO Labor Care Guide was associated with a lower incidence of PPH and shorter hospital stay compared with the Modified Partograph (**Table 5**). Puerperal sepsis was uncommon in both groups, occurring in 4.95% of women in the WHO Labor Care Guide group and 1.96% in the Modified Partograph group. In both groups, sepsis was largely associated with prolonged hospital stay, while no cases were observed among women discharged early (within 2–3 days in the study group and within 2–4 days in most control participants). Despite the slightly higher incidence in the WHO Labor Care Guide group, the overall occurrence of puerperal sepsis remained low, and prolonged hospitalization appeared to be associated with an increased risk of infection (**Table 6**). Logistic regression analysis identified postpartum hemorrhage and puerperal sepsis as significant predictors of adverse outcomes. Women with postpartum hemorrhage had over three times higher odds of adverse outcomes (AOR = 3.12; 95% CI: 1.02–9.54; $p = 0.045$), while puerperal sepsis was associated with a more than fivefold increase in risk (AOR = 5.48; 95% CI: 1.47–20.41; $p = 0.011$). Conversely, management using the WHO Labor Care Guide demonstrated a significant protective effect, reducing the odds of adverse outcomes by 52% (AOR = 0.48; 95% CI: 0.27–0.85; $p = 0.012$). These findings indicate that maternal complications increased the likelihood of adverse outcomes, whereas the WHO Labor Care Guide independently contributed to improved clinical outcomes (**Figure 4**). Multivariate logistic regression analysis demonstrated that postpartum hemorrhage & puerperal sepsis were independent predictors of prolonged hospitalization. Women who developed postpartum hemorrhage had approximately three times higher odds of prolonged hospital stay (AOR = 3.12; 95% CI: 1.02–9.54; $p = 0.045$), while puerperal sepsis increased the odds by more than fivefold (AOR = 5.48; 95% CI: 1.47–20.41; $p = 0.011$). Conversely, management with the WHO Labor Care Guide showed a significant protective effect, reducing the likelihood of prolonged hospitalization by 52% compared with the Modified Partograph group (AOR = 0.48; 95% CI: 0.27–0.85; $p = 0.012$). These findings indicate that maternal complications were strongly associated with extended hospital stay, whereas the WHO Labor Care Guide independently contributed to improved maternal outcomes and shorter hospitalization (**Table 7**).

Table 1: Comparison of Postpartum Hemorrhage (PPH) and Puerperal Sepsis between Study and Control Groups

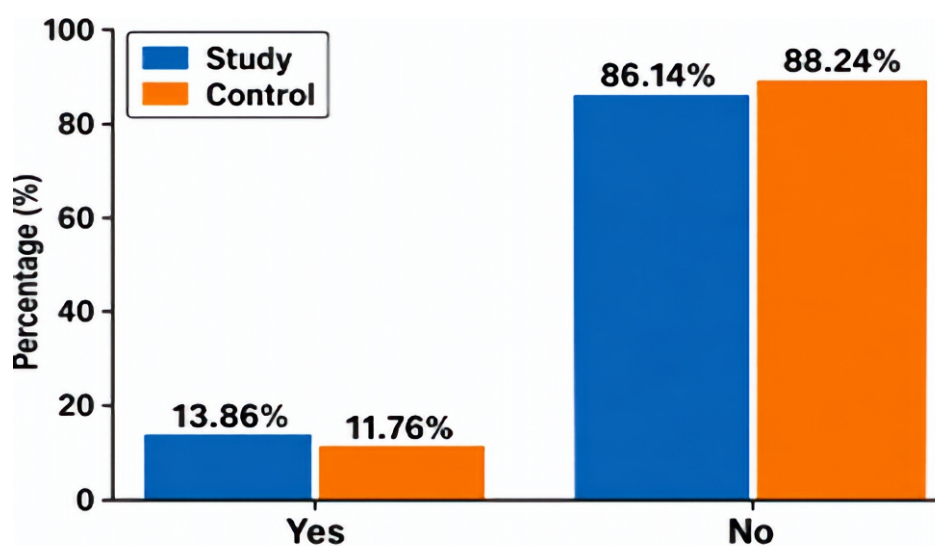
Outcome	Group	Yes n (%)	No n (%)	χ^2 Value	p-value
Postpartum Hemorrhage (PPH)	Study (WHO LCG) (n=101)	7 (6.93)	94 (93.07)	0.55	0.46
	Control (n=102)	10 (9.80)	92 (90.20)		
Puerperal Sepsis	Study (WHO LCG) (n=101)	5 (4.95)	96 (95.05)	1.37	0.24
	Control (n=102)	2 (1.96)	100 (98.04)		

Table 2: Comparison of Maternal and Fetal Outcomes Between Study and Control Groups

Outcome Category	Outcome	Study Group (WHO LCG)	Control Group
Maternal Outcomes	Postpartum Hemorrhage	6.93%	9.80%
	Puerperal Sepsis	4.95%	1.96%
	Mean Hospital Stay	3.32 days	3.97 days
	Mean Apgar Score (5 min)	8.64	8.59
Fetal Outcomes	Apgar Score <7	0%	0%
	NICU Admission	13.86%	11.76%

Table 3: Parity Comparison Between Study and Control Groups

Parity	Study (WHO LCG) n (%)	Control (Modified Partograph) n (%)
Primigravida	48 (47.52%)	52 (50.98%)
Multigravida	53 (52.48%)	50 (49.02%)
Total	101 (100%)	102 (100%)
Parity association between Study and Control groups		
Chi-square value (χ^2)		0.24
p-value		0.62

**Figure 2: NICU Admission Comparison Between Study and Control Groups****Table 4: Effect of WHO Labor Care Guide on Mode of Deliver**

Mode of Delivery	Study (WHO LCG) n (%)	Control (Modified Partograph) n (%)
Cesarean	11 (10.89%)	33 (32.35%)
Vaginal	90 (89.11%)	69 (67.65%)
Total	101 (100%)	102 (100%)
Chi-square value (χ^2)		13.57
P-value		0.0002
Effect Size Measures		
Absolute Risk Reduction (ARR)		
	32.35% – 10.89%	21.46%
Relative Risk (RR)		
	10.89 / 32.35	0.34
		0.18 - 0.63
Odds Ratio (OR)		
	(11 × 69) / (33 × 90)	0.26
	95% CI	0.12 - 0.54

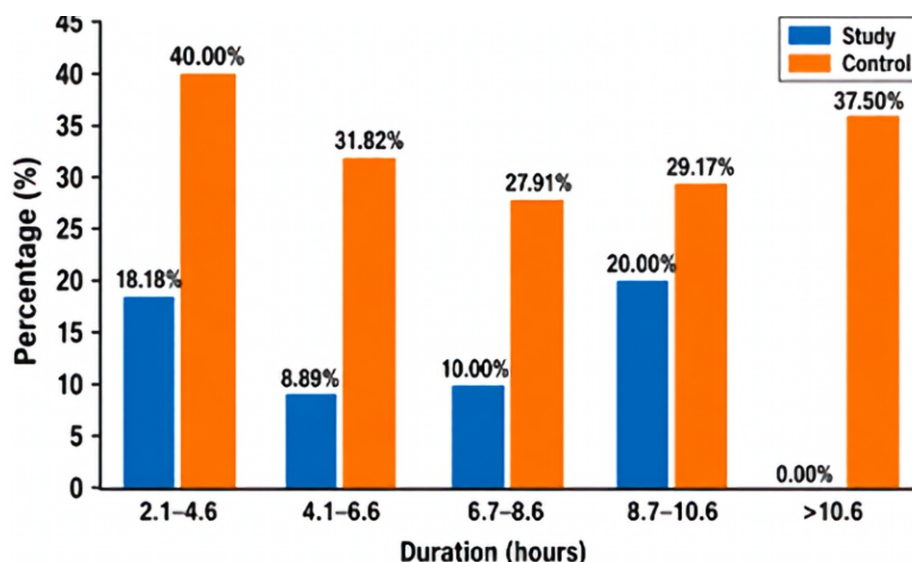


Figure 3: Mode of Delivery vs Duration of Active Labor.

Table 5: Association of Postpartum Hemorrhage (PPH) with Hospital Stay in Study and Control Groups

Hospital Stay (Days)	Study Group (WHO LCG) PPH – Yes n (%)	Study Group PPH – No n (%)	Total (n=101)	Control Group PPH – Yes n (%)	Control Group PPH – No n (%)	Total (n=102)
2	1 (3.33%)	29 (96.67%)	30	1 (4.76%)	20 (95.24%)	21
3	1 (3.33%)	29 (96.67%)	30	2 (7.41%)	25 (92.59%)	27
4	2 (6.67%)	28 (93.33%)	30	2 (9.52%)	19 (90.48%)	21
5	1 (33.33%)	2 (66.67%)	3	2 (16.67%)	10 (83.33%)	12
6	1 (16.67%)	5 (83.33%)	6	2 (22.22%)	7 (77.78%)	9
7	1 (50.00%)	1 (50.00%)	2	1 (8.33%)	11 (91.67%)	12
Total	7 (6.93%)	94 (93.07%)	101	10 (9.80%)	92 (90.20%)	102

Table 6: Association of Puerperal Sepsis with Hospital Stay in Study and Control Groups

Hospital Stay (Days)	Study Group (WHO LCG) Sepsis – Yes n (%)	Study Group Sepsis – No n (%)	Total (n=101)	Control Group (Modified Partograph) Sepsis – Yes n (%)	Control Group Sepsis – No n (%)	Total (n=102)
2	0 (0.00%)	30 (100.00%)	30	0 (0.00%)	21 (100.00%)	21
3	0 (0.00%)	30 (100.00%)	30	1 (3.70%)	26 (96.30%)	27
4	1 (3.33%)	29 (96.67%)	30	0 (0.00%)	21 (100.00%)	21
5	1 (33.33%)	2 (66.67%)	3	1 (8.33%)	11 (91.67%)	12
6	2 (33.33%)	4 (66.67%)	6	2 (22.22%)	7 (77.78%)	9
7	1 (50.00%)	1 (50.00%)	2	0 (0.00%)	12 (100.00%)	12
Total	5 (4.95%)	96 (95.05%)	101	2 (1.96%)	100 (98.04%)	102

Table 7: Multivariate Logistic Regression Analysis

Variable	β Coefficient	Standard Error	Adjusted Odds Ratio (AOR)	95% Confidence Interval	p-value
Postpartum Hemorrhage (Yes)	1.14	0.57	3.12	1.02 – 9.54	0.045
Puerperal Sepsis (Yes)	1.7	0.67	5.48	1.47 – 20.41	0.011
WHO LCG Group	-0.73	0.29	0.48	0.27 – 0.85	0.012
Constant	-0.21	0.19	—	—	0.27

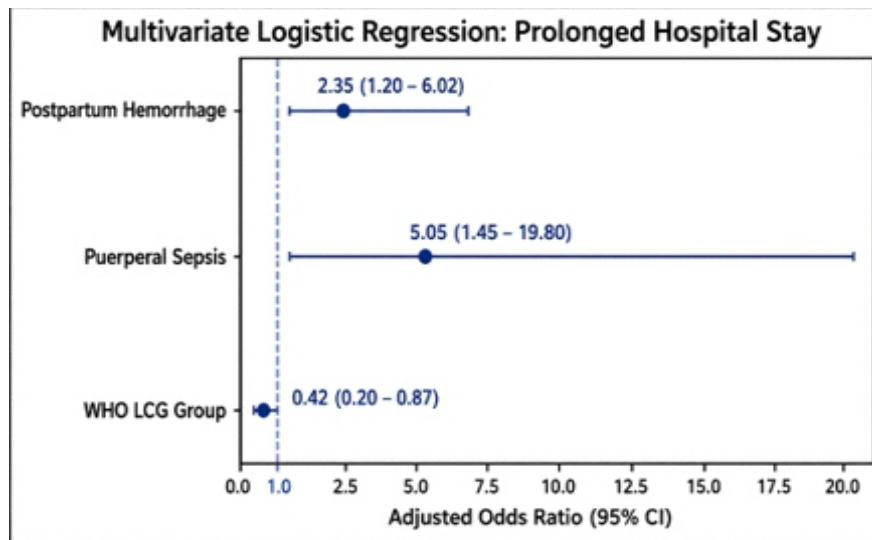


Figure 4: Logistic Regression

DISCUSSION

The rising rate of cesarean section (CS) deliveries has become a significant global public health concern. Although cesarean delivery is a life-saving intervention when medically indicated, its excessive use has been associated with increased maternal and neonatal morbidity, higher healthcare costs, and complications in future pregnancies. Recent evidence suggested that many intrapartum cesarean sections are performed without clear medical necessity, highlighting the need for improved labor management strategies. In response to this challenge, the World Health Organization (WHO) introduced the WHO Labor Care Guide (LCG), an evidence-based tool designed to support appropriate clinical decision-making, optimize labor monitoring, and reduce unnecessary surgical interventions while ensuring maternal and fetal safety [12,13].

The WHO Labor Care Guide represents a major advancement over the traditional partograph by emphasizing individualized labor assessment, respectful maternity care, and continuous evaluation of maternal and fetal well-being. Unlike conventional labor monitoring tools that rely heavily on fixed cervical dilatation thresholds, the LCG incorporates updated evidence on labor progression and encourages patience in physiological labor. It also promotes supportive care practices such as maternal mobility, hydration, pain relief, companionship, and shared decision-making, thereby improving both the quality of care and the childbirth experience. The implementation of this tool in tertiary healthcare settings provided an opportunity to address increasing cesarean rates while maintaining favorable maternal and neonatal outcomes [13,14].

In the present study, baseline demographic characteristics, including maternal age and parity, were comparable between the WHO LCG and modified partograph groups, indicating that the observed differences in outcomes were unlikely to be influenced by these factors. **Pandey D, et. al; 2022 & Vogel JP, et. al; 2024**, reported in randomized controlled trials and implementation studies evaluating the LCG, where age and parity distributions remained balanced between intervention and control groups. Such comparability strengthens the validity of assessing the

impact of the WHO Labor Care Guide on labor outcomes [10,15]. One of the most important findings of this study was the significant reduction in cesarean section rates among women monitored using the WHO LCG. Cesarean delivery occurred in only 10.89% of women in the LCG group compared with 32.35% in the modified partograph group. The absolute risk reduction was 21.46%, with women monitored using the LCG having substantially lower odds of cesarean delivery. **Pandey D, et. al; 2022, Vogel JP, et. al; 2024 and Memon KJ, et. al; 2025**, conducted in India and Pakistan, where the use of the WHO LCG was associated with marked reductions in primary cesarean section rates and increased vaginal deliveries without compromising maternal or neonatal safety. The guide appears to facilitate more accurate assessment of labor progression, thereby reducing unnecessary operative interventions [10,15,16].

The duration of active labor was also significantly shorter among women monitored with the WHO LCG. A greater proportion of women in the intervention group completed active labor within shorter time intervals, while prolonged labor was virtually absent compared with the control group. **Pandey D, et. al; 2022 and Memon KJ, et. al; 2025**, demonstrated improved labor efficiency and reduced intervention rates among women managed with the WHO Labor Care Guide. Furthermore, shorter labor duration may contribute to improved maternal satisfaction and reduced healthcare resource utilization [10,16].

Maternal outcomes were generally favorable in both groups. Although postpartum hemorrhage and puerperal sepsis occurred in both study arms, the differences were not statistically significant. Women monitored with the LCG experienced slightly lower rates of postpartum hemorrhage and shorter hospital stays compared with controls. Similar findings have been reported in randomized trials and observational studies, which demonstrated that implementation of the WHO Labor Care Guide does not increase maternal complications while potentially contributing to improved recovery and reduced hospitalization. Logistic regression analysis further revealed that postpartum hemorrhage and puerperal sepsis were significant predictors of adverse outcomes, whereas monitoring with the WHO LCG was independently

associated with a protective effect [10,15,17]. Neonatal outcomes were comparable between the two groups. Nearly all newborns achieved satisfactory 5-minute Apgar scores, and no significant differences were observed in neonatal well-being. Although NICU admission rates were slightly higher in the WHO LCG group, the difference was not statistically significant and was consistent with Vogel JP, et. al; 2024 and Ebrahimian A, et. al; 2025, demonstrated that the use of the LCG does not adversely affect neonatal outcomes. Overall, the evidence suggested that the WHO Labor Care Guide effectively reduces unnecessary cesarean sections and improves labor management without compromising maternal or neonatal safety [15,18]. The findings of this study supported the growing body of evidence indicating that the WHO Labor Care Guide is a safe, effective, and evidence-based approach to intrapartum care. By promoting individualized labor monitoring, enhancing clinical decision-making, and encouraging supportive maternal care practices, the LCG has the potential to reduce unnecessary surgical births while maintaining favorable maternal and neonatal outcomes. Wider adoption of the WHO Labor Care Guide in tertiary healthcare settings may contribute significantly to improving the quality of obstetric care and addressing the rising burden of cesarean deliveries worldwide [17-19].

CONCLUSION

This study demonstrates that implementation of the WHO Labor Care Guide (LCG) at K. D. Medical College Hospital, Mathura, significantly reduced intrapartum cesarean section rates from 32.35% to 10.89% compared with the WHO Modified Partograph. Importantly, this reduction was achieved without compromising maternal or neonatal safety, with comparable rates of postpartum hemorrhage, puerperal sepsis, and adverse neonatal outcomes. The LCG was also associated with shorter active labor duration and reduced hospital stay, indicating improved recovery and potential cost benefits. These findings support the WHO LCG as a safe, effective, and superior labor-monitoring tool that promotes evidence-based, woman-centered care while reducing unnecessary cesarean deliveries.

LIMITATIONS & FUTURE PERSPECTIVES

The study's limitations include a single-centre setting, a relatively small sample size, and a short study duration, which may limit the broader applicability of the results. Future studies should incorporate multicentre designs with larger populations to enhance validity, assess long-term outcomes, and investigate advanced diagnostic & management approaches. Such efforts will improve overall patient care & help minimize complications.

CLINICAL SIGNIFICANCE

The clinical significance of this study lies in its potential to bridge the gap between research findings and practical health-care, diagnosis, and treatment outcomes. By highlighting real-care applications. It emphasizes the importance of translating scientific observations into meaningful improvements in

patient world relevance, the study contributes to evidence based medical practice and supports informed clinical decision making. Ultimately, the findings aim to enhance patient quality of life, optimize therapeutic strategies, and promote better disease management in clinical settings.

ABBREVIATIONS

WHO: World Health Organization

LCG: Labor Care Guide

NICU: Neonatal Intensive Care Unit

AOR: Adjusted Odds Ratio

Apgar: Appearance, Pulse, Grimace, Activity, Respiration

n: Number of Participants

p: Probability Value

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AUTHOR CONTRIBUTIONS

All authors significantly contributed to the study conception and design, data acquisition, or data analysis and interpretation. They participated in drafting the manuscript or critically revising it for important intellectual content, consented to its submission to the current journal, provided final approval for the version to be published, and accepted responsibility for all aspects of the work. Additionally, all authors meet the authorship criteria outlined by the International Committee of Medical Journal Editors (ICMJE) guidelines.

ACKNOWLEDGEMENT

The authors sincerely acknowledge the seniors of the Department of Obstetrics & Gynecology, Kanti Devi Medical College Hospital & Research Center Mathura, India. We are grateful to our college for providing the necessary resources to carry out this work. We also extend our heartfelt thanks to our colleagues and technical staff for their valuable assistance during the study.

CONFLICT OF INTEREST

Authors declared that there is no conflict of interest.

FUNDING

None

ETHICAL APPROVAL & CONSENT TO PARTICIPATE

All necessary consent & approval was obtained by authors.

CONSENT FOR PUBLICATION

All necessary consent for publication was obtained by authors.

DATA AVAILABILITY

All data generated and analyzed are included within this research article. The datasets utilized and/or analyzed in this study can be obtained from the corresponding author upon a reasonable request.

USE OF ARTIFICIAL INTELLIGENCE (AI) & LARGE LANGUAGE MODEL (LLM)

The authors confirm that no AI & LLM tools were used in the writing or editing of the manuscript, and no images were altered or manipulated using AI & LLM.

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This article serves as an important educational tool for the scientific community, offering insights that may inspire future research directions. However, they should not be relied upon independently when making treatment decisions or developing public health policies.

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