The Development of the WHO Labour Care Guide: An International Survey of Maternity Care Providers

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Abstract

Background

The partograph is the most commonly used labour monitoring tool globally. However, it is used incorrectly or inconsistently in many settings. In 2018, a WHO expert group reviewed and revised the design of the partograph in view of emerging evidence and developed the first version of the Labour Care Guide (LCG). The objective of this study was to explore views and opinions of skilled health personnel on the first version of the WHO Labour Care Guide.

Methods

Skilled health personnel (including obstetricians, midwives and general practitioners) of any age and gender from Africa, Asia, Europe and Latin America were identified through a large global research network. Country coordinators from the network invited 5 to 10 mid-level and senior skilled health personnel who have worked in labour wards anytime in the last 5 years. A self-administered, anonymous, structured, online questionnaire including closed and open-ended questions was designed to assess the clarity, relevance, appropriateness of the frequency of recording, and the completeness of the variables on the LCG.

Results

A total of 110 respondents from 23 countries completed the survey between December 2018 and January 2019. Variables included in the LCG were generally considered clear, relevant and with appropriate recording frequency. Most sections of the LCG were considered complete. Respondents agreed or strongly agreed with the overall design, structure of the LCG, and the usefulness of reference thresholds to trigger further assessment and actions. They also agreed that LCG will potentially impact positively on clinical decision-making and respectful maternity care. Respondents disagreed with the value of some variables including coping, urine, and neonatal status.

Conclusions

Future end-users of WHO next generation partograph considered the variables to be clear, relevant and appropriate, and to have the potential to positively impact on clinical decision-making and respectful maternity with minor improvements.

Plain Summary

The partograph is a pre-printed form used by health professionals to check a woman’s and baby’s well-being during labour. Although it is used all over the world, it is used incorrectly or inconsistently in many settings. In 2018, a group of experts coordinated by the World Health Organization reviewed and revised the design of the partograph in view of emerging research and developed the first version of the Labour Care Guide (LCG). The aim of this study was to explore the opinions of health professionals on the first version of the LCG. Experienced health professionals of any age and gender from Africa, Asia, Europe, and Latin America were invited to participate in an online survey to assess several features of the LCG (e.g. the clarity and relevance of its components, its design, and if all relevant components were included). A total of 110 respondents from 23 countries completed the survey between December 2018 and January 2019. Components included in the LCG were generally considered clear and relevant. Most sections of the LCG were considered complete. Respondents agreed with the overall design and they found the LCG useful in the facilitation of labour monitoring and respectful care. Respondents disagreed with the value of very few components.

Introduction
During the past 20 years, skilled birth attendance has been promoted widely to reduce preventable maternal and perinatal mortality and morbidity. This has translated into large increases in both the coverage of births attended by skilled health personnel (62% in 2000 to 80% in 2017), and facility-based births. However, these increases in coverage have not always translated into the expected reduction of maternal and perinatal mortality and morbidity during labour and childbirth, suggesting that suboptimal quality of care is still prevalent in health facilities. Regular monitoring of labour and childbirth is vital to identifying risks or complications and preventing adverse birth outcomes.

The partograph is the most commonly used labour monitoring tool, and it has been used for over 40 years by skilled health personnel providing care during labour. However, in light of the publication of the 2018 World Health Organization (WHO) recommendations on intrapartum care for a positive childbirth experience, the partograph requires a revision to facilitate care according to emerging evidence and global priorities. These WHO recommendations included new definitions and durations of the first and second stages of labour and highlight the importance of woman-centred care to optimize the experience of labour and childbirth for women and their babies.

WHO therefore initiated development of a “next-generation” partograph, known as the WHO Labour Care Guide (LCG) (first version shown in Supplementary File 1) with the purpose of: a) continuously remind practitioners to offer supportive care throughout labour and childbirth, and remind them of what observations should be regularly made during labour to identify any emerging complication in mother and/or baby; b) provide reference thresholds for abnormal labour observations that should trigger specific actions; c) minimize over-diagnosis and under-diagnosis of abnormal labour events and the unnecessary use of interventions; and d) support audits and quality of labour care improvement.

The objective of this study was to explore perspectives of skilled health personnel proving care during labour and childbirth on the first version of the LCG.

Methods

We conducted an international cross-sectional survey among skilled health personnel who were actively providing labour and childbirth care in a health facility. Participating skilled health personnel were asked about their opinions on the clarity, relevance, appropriateness of the frequency of recording and completeness of each section of the first version of the LCG. All respondents consented to participating in the survey.

The LCG was organized into eight sections. The first section is for identification and specifically related to the time of diagnosis of active phase of labour, while the other sections are related to different categories of care provided throughout labour and childbirth: supportive care (companion, coping, pain relief, oral fluid and posture), care of the baby (baseline fetal heart rate (FHR), FHR deceleration, amniotic fluid, fetal position, caput and moulding), care of the mother (pulse, blood pressure, temperature and urine), labour progress (uterine contractions in 10 minutes, duration of contractions, cervix, and descent), medication (oxytocin, medicine, IV fluid), shared decision-making (assessment and plan), and birth outcomes (mode of birth, Apgar score at 5 minutes, blood loss, neonatal status and birthweight).

Participants and sample

Skilled health personnel providing care during labour and childbirth (obstetricians, midwives and general practitioners) of any age and gender from four continents - Africa, Asia, Europe and Latin America - were the population of interest. We targeted mid-level and senior providers who were currently practicing or have been working in labour wards during the previous 5 years. Eligible individuals were those who expressed their interest in participating, were fluent in English, French or Spanish, and provided consent to participate.

Participants were identified through the WHO Global Maternal Sepsis Study (GLOSS) research network. Study coordinators from 23 countries of GLOSS research network, out of 30 invited, were involved in pilot testing the online...
questionnaire, and in the selection and invitation of five to 10 mid-level and senior skilled health personnel currently practicing in labour wards in a health facility in their country/area of study or who had been working in labour wards during the previous 5 years. Country coordinators were encouraged to provide a diverse sample of skilled health personnel, based on the relevant cadres in their area.

Procedures

A semi-structured questionnaire was designed, including closed and open-ended questions. The questionnaire was pretested among four maternal health researchers, using cognitive interviews for assessing its face-validity. Additionally, 12 English-proficient practicing obstetricians participated in a pilot study to assess length, clarity and relevance of the questionnaire. Once the pilot was completed, a final adjustment of the instrument was performed.

The online survey (via Survey Monkey™) was self-administered and anonymous (see Appendix A for a full version of the questionnaire). It assessed the clarity, relevance, and appropriateness of the frequency of recording and completeness of each of the eight sections of the LCG. The clarity and relevance of variables included in the LCG were rated on a 9-point Likert scale, ranging from 1 (very unclear or not relevant) to 9 (very clear and extremely relevant). The completeness of each section was assessed by asking participants if any other relevant variables should be added. Agreement regarding appropriateness of the frequency of recording was measured on a 4-point Likert scale: strongly agree, agree, disagree and strongly disagree. Participants were also asked to provide their views on the format of open-text variables in the LCG, and to provide comments on each section. Finally, there was a section for general assessment of the LCG, including: providers’ opinions on the overall structure and organization of the LCG, clarity of instructions and abbreviations. The survey also asked about participants perceptions of its possible impact on clinical decision-making and respectful maternity care, and the usefulness of reference thresholds to trigger further assessment and necessary actions. The questionnaire was developed in English and translated into French and Spanish.

The survey was sent in December 2018 to 142 providers identified through GLOSS country coordinators. Among invited providers, 114 confirmed their interest and availability to participate in the online survey. Three reminders were sent to participants with partial or no responses over a six-week period. Completeness and consistency between the survey items were monitored during survey administration.

Data analysis

The median value and dispersion measures were computed for numerical variables, and proportions were calculated for categorical variables. For the items rated on a 9-point Likert scale, we measured the absolute and relative frequency in each of the three intervals: low (1–3), intermediate (4–6) and high (7–9). Each item was classified as inappropriate, uncertain or appropriate based on the median rating and degree of disagreement (median 1 to 3 without disagreement = inappropriate; median 4 to 6 or any median with disagreement = uncertain; median 7 to 9 without disagreement = appropriate). Disagreement was considered present when RAND Disagreement Index (DI) ≥ 1.0. The DI is a continuous scale used to describe dispersion of participants´ ratings. A DI of 0 represents complete agreement while a DI ≥ 1 has been determined by RAND to indicate disagreement (see more details in Appendix B) (9). Combined proportions were calculated and reported for the responses “Strongly agree” and “Agree”, “Strongly disagree” and “Disagree”.

Optional open-ended questions were located at the end of each section. Answers were analysed using a thematic analysis. Matrices were developed to facilitate comparison among responses and to organize the data by analytical themes. Main themes were the following: clarity, relevance and completeness. We also included comments that emerged from responses, regarding the tool design and display. Finally, data was extracted and interpreted. All themes mentioned at least once were included.

Results
Out of 114 skilled health personnel invited to participate, 110 across 23 countries completed the survey. Table 1 reports the characteristics of participants. Skilled health personnel represented professionals of a range of ages, professional background, and world regions: Africa (n = 53), Asia (n = 22), Latin America (n = 21) and Europe (n = 14). Female participants doubled the number of male participants. The majority had worked in labour wards and had used a partograph in the previous 5 years. There was a relatively larger number of African health care providers in the sample, as well as a larger number of obstetricians among all labour and birth attendants.
| Variable                           | N   | %   |
|-----------------------------------|-----|-----|
| **110**                           | 100 |     |
| Region                            |     |     |
| Africa                            | 53  | 48  |
| Asia                              | 22  | 20  |
| Latin America                     | 21  | 19  |
| Europe                            | 14  | 13  |
| Gender                            |     |     |
| Female                            | 75  | 71  |
| Male                              | 30  | 29  |
| Age                               |     |     |
| <30                               | 12  | 12  |
| 30-44                             | 50  | 48  |
| 45-60                             | 38  | 37  |
| >60                               | 4   | 4   |
| Profession                        |     |     |
| Obstetrician                      | 62  | 59  |
| Midwife/Nurse-midwife             | 34  | 32  |
| OBGYN Resident                    | 4   | 4   |
| General Practitioner              | 3   | 3   |
| Other                             | 2   | 2   |
| Time since qualification (years)  |     |     |
| <5                                | 17  | 17  |
| 5-20                              | 61  | 59  |
| >20                               | 25  | 24  |
| Last time worked in labour ward (years) |     |     |
| <5                                | 83  | 80  |
| 5-20                              | 16  | 15  |
| >20                               | 5   | 5   |
| Last time used a partograph (years) |     |     |
| <5                                | 89  | 86  |
| 5-20                              | 13  | 13  |
| >20                               | 1   | 1   |
Table 2 shows the median rating, the appropriateness classification, and the appropriateness of the frequency of recording of each variable. This table also describes median ratings and appropriateness classifications on reference values proposed by the LCG for variables related to clinical parameters. Open-ended questions for each LCG section were optional and were only responded by a proportion of the sample (between 16% – 40% depending on the section). Findings from open-ended questions are summarized in Supplementary Table 1.
| Variables (reference value) | Ratings on variables | Ratings on reference values |
|-----------------------------|----------------------|-----------------------------|
|                             | Relevance            | Clarity                     |
|                             | Median rating        | Median rating               |
|                             | Appropriateness classification | Appropriateness classification |
|                             | Frequency of recording | Strongly agree or agree n (%) | Clarity |
|                             |                      |                             | Median rating | Appropriateness classification |

**Section 1 – Identification**

- **Parity**: 9.0, Appropriate
- **Labour Onset**: 9.0, Appropriate
- **Active Labour Diagnosis**: 9.0, Appropriate
- **Ruptured Membranes**: 9.0, Appropriate
- **Risk factor**: 9.0, Appropriate

**Section 2 – Supportive Care**

- **Companion**: 9.0, Appropriate
- **Coping**: 8.0, Uncertain
- **Pain relief**: 9.0, Appropriate
- **Oral fluid**: 9.0, Appropriate
- **Posture**: 8.0, Appropriate

**Section 3 - Care of the baby**

- **Baseline FHR (< 110, ≥ 160)**: 9.0, Appropriate
- **FHR deceleration (L)**: 9.0, Appropriate
- **Amniotic fluid (M+++)**: 9.0, Appropriate
- **Fetal position (OP, O)**: 9.0, Appropriate
- **Caput (+++)**: 9.0, Appropriate
- **Moulding (+++)**: 9.0, Appropriate

**Section 4 - Care of the mother**
| Ratings on variables | Ratings on reference values |
|----------------------|-----------------------------|
| **Pulse (<60, ≥120)** | 9 Appropriate | 9 Appropriate | 91 (86) | 9 Appropriate |
| **Systolic BP (<80, ≥140)** | 9 Appropriate | 9 Appropriate | 86 (81) | 9 Appropriate |
| **Diastolic BP (≥90)** | 9 Appropriate | 9 Appropriate | 87 (82) | 9 Appropriate |
| **Temperature °C (<35, ≥37.5)** | 9 Appropriate | 9 Appropriate | 76 (72) | 9 Appropriate |
| **Urine (P++,A++)** | 9 Appropriate | 9 Appropriate | 63 (59) | 9 Appropriate |

**Section 5 - Labour progress**

| Contractions per 10 min (≤2, >5) | 9 Appropriate | 9 Appropriate | 97 (92) | 9 Appropriate |
|---------------------------------|---------------|---------------|--------|---------------|
| Duration of contractions (<20, >60) | 9 Appropriate | 9 Appropriate | 95 (90) | 9 Appropriate |
| Cervix recorded as 5-10cm (≥2h to ≥6h) | 9 Appropriate | 9 Appropriate | 81 (82) | Uncertain |
| Descendent | 9 Appropriate | 9 Appropriate | 89 (85) | |

**Section 6: Medication**

| Oxytocin | 9 Appropriate | 9 Appropriate | 93 (89) | N/A |
| Medicine | 9 Appropriate | 9 Appropriate | 92 (88) | N/A |
| IV fluid | 9 Appropriate | 9 Appropriate | 92 (88) | N/A |

**Section 7 - Shared decision-making**

| Assessment | 9 Appropriate | 9 Appropriate | 90 (86) | N/A |
| Plan | 9 Appropriate | 9 Appropriate | 91 (87) | N/A |

**Section 8: Birth Outcomes**

| Mode of birth | 9 Appropriate | 9 Appropriate | N/A | N/A |
| Apgar score at 5 minutes | 9 Appropriate | 9 Appropriate | N/A | N/A |
| Blood loss | 9 Appropriate | 9 Appropriate | N/A | N/A |
| Neonatal status | 9 Appropriate | 9 Appropriate | N/A | N/A |
| Birthweight | 9 Appropriate | 9 Appropriate | N/A | N/A |

For Sect. 1 (Identification), all variables received a median score of 9 with appropriate classification of rating for clarity and relevance. Overall, participants perceived all the variables in this section to be clear and relevant, and there was
agreement that the open text format of recording “Parity”, “Labour onset” and “Risk factor” was appropriate. However, 55% of the participants agreed that one or more variables (e.g. date and time of admission) should be added to this section to make it complete. Regarding open-ended questions, participants required clearer definitions of “labour onset” (also categories – such as “induced” or “spontaneous”) and “risk factors”. The potential difficulties in registering the start of active phase if the patient was admitted late in labour were also reported. It was suggested to include maternal and fetal clinical variables and administrative information for patients’ follow-up.

For Sect. 2 (Supportive care), the majority of variables had high median ratings for clarity and relevance (i.e. 8–9) and were considered appropriate with the exception of the variable “Coping”. “Coping” had a median value of 7 without agreement for clarity. Assessment of relevance showed that participants considered each variable appropriate, but consensus on the relevance of including the whole section (Supportive Care) in the LCG and the variable “coping” was not reached. Participants agreed with the frequency of recording this section’s variables, except for “coping” and “posture”, where 30% and 25% of participants disagreed with the proposed frequency of recording, respectively. Most of participants were in favour of less frequent recording. From the open-ended question, participants reported lack of clarity or problematic terms, such as “companionship”. Lack of clarity on how to record pain relief was described (type of analgesia, epidural, pharmacological or not pharmacological), and some participants preferred to record “effective pain relief”. For the variable “posture”, participants suggested new abbreviations for categories, “walking” for example, and highlighted that “SP” (for supine position) should be included as a reference.

Participants agreed with the clarity, relevance, completeness, and appropriateness of Sect. 3 (Care of the baby), as all variables received high median values with agreement. With respect to the appropriateness of the frequency of recording variables, a high proportion of agreement was observed for “baseline fetal heart rate” (FHR), “FHR decelerations” and “amniotic fluids”. Lower level of agreement was observed for “fetal position”, “caput” and “moulding”, with the majority of participants favouring less frequency of recording. Participants also agreed that reference values were clear. Approximately 22% of participants reported that they would prefer to record “fetal position”, “caput” and “moulding” less frequently, given that these variable require vaginal examinations. In the open-ended question, participants made suggestions to improve the recording of some variables such as FHR deceleration, caput succedaneum and moulding, and the frequency for recording.

Section 4 (Care of the mother) obtained very high rating for relevance, clarity and clarity of reference values, and were considered appropriate. A lower proportion of agreement was found for the frequency of recording of “urine” as 41% of the participants were in favour of recording it less frequently. In open-ended questions, respondents made suggestions for variables such as pulse, blood pressure and urine.

Sections 5 (Labour progress), 6 (Medication), 7 (Shared decision-making) and 8 (Birth outcomes) obtained high ratings on all assessed criteria. “Cervix” from Sect. 5 was the only variable of the section that obtained a lower proportion of high ratings on clarity (71%) and on the clarity of its reference value (67%) – this last assessment showed dissent among participants. The Sect. 7 variable “assessment” also received a slightly lower proportion of high ratings for clarity. The Sect. 8 variable “neonatal status” obtained a lower level of agreement on the proposed format for recording.

Within open-ended questions in Sect. 6, respondents suggested a better explanation of how to record medications, type of intravenous (IV) fluid being reported, and adding reference to oxytocin. Some respondents suggested including a variable to record “use of oxygen”. In Sect. 7 there were some difficulties in understanding the difference between “Assessment” and “Plan”. While in Sect. 8, some providers suggested to include variables such as Apgar at 1, 5 and 10 minutes, newborn sex, any abnormality, and interventions at third stage of labour.

Regarding additional variables required per section, the completeness was lower in Sect. 1 and 8, where 55% and 42% of participants respectively, considered that additional variables needed to be added (results shown in Table 3).
Table 3
Completeness of LCG sections

| Sections                      | N  | %  |
|-------------------------------|----|----|
| Additional variables are required | 110| 100|
| Section 1 - Identification    | 60 | 55 |
| Section 2 – Supportive Care   | 21 | 20 |
| Section 3 - Care of the baby  | 21 | 20 |
| Section 4 - Care of the mother| 10 | 10 |
| Section 5 - Labour progress   | 14 | 13 |
| Section 6 - Medication        | 11 | 11 |
| Section 7 - Shared decision-making | 8  | 8  |
| Section 8 - Birth Outcomes    | 44 | 42 |

Finally, the general assessment of the LCG received high levels of agreement regarding its potential to lead to a positive impact on quality of care: would facilitate decision-making (96%), and implementation of respectful care (94%), sections organization (93%), and general design – clear instructions (80%), clear abbreviations (84%). However, 28% of participants reported that it would not be easy to complete (Table 4).

Table 4
General assessment of the new WHO Partograph

| To what extent do you agree with the following statements about the new partograph? | Agree or strongly agree |
|---------------------------------------------------------------------------------|------------------------|
|                                                                                | N  | %  |
|                                                                                | 110| 100|
| It will facilitate clinical decision-making                                     | 100| 96 |
| The reference thresholds will trigger further assessment and necessary action   | 98 | 93 |
| It will facilitate implementation of respectful maternity care policy           | 99 | 94 |
| Contains all relevant variables                                                | 90 | 85 |
| It will be easy to complete                                                    | 76 | 72 |
| Instructions are clear                                                         | 84 | 80 |
| Abbreviations are clear                                                        | 89 | 84 |
| The sections are logically organized                                           | 98 | 93 |
| 24-hour time format is very appropriate                                        | 94 | 89 |
| Enables provider identification                                                | 85 | 81 |

Discussion

This paper describes the findings of an international online survey of skilled health personnel in 23 countries on the first version of the LCG, a new partograph that was under construction by WHO. Understanding the views of these practitioners
were meant to inform the revisions and finalisation of the LCG.

In general, variables included in the LCG were considered clear, relevant and to have an appropriate frequency of recording. In addition, most sections were considered complete for labour monitoring. The LCG received high levels of agreement regarding its potential for making a positive impact on quality of care, and with the sections organization and general design. Few variables (“coping”, “urine”, “cervix”, “neonatal status”) received lower ratings, or agreements among participants were not achieved.

This study provided useful information regarding how to improve the LCG design, and for the development of an LCG user’s manual and training materials. Regarding reference threshold for cervical dilatation, in recent years, it was demonstrated that the progress of 1 cm/hour is unrealistic for many women in labour, and that the length of the dilatation period does not correlate with adverse perinatal events when observations of other maternal and perinatal health parameters remain normal (10, 11). In the light of the new evidence, previous alert and action lines used in labour monitoring for several decades are no longer recommended (12). The response of the participants suggest that the majority were not aware of the new WHO recommendations and underpinning evidence on this subject.

Health care professionals showed uncertainty (no agreement) on including Sect. 2 (Supportive care) in the LCG. This could be related to the fact that the previous partograph designs historically had been used to monitor only clinical variables that are highly valued by health care personnel providing care during labour and childbirth. A new feature of the LCG is the inclusion of non-clinical observations (as the ones included in the “Supportive Care” section) as part of labour monitoring. This update is supported by current WHO recommendations and the corresponding WHO model for intrapartum care which promotes woman-centred care (7). The uncertainty (no agreement) on the clarity of two specific items of the LCG is noteworthy: “coping” and the reference values for “cervical dilatation”. “Coping” was considered unclear in all three languages; although it was less clear for Spanish and French-speakers in comparison to English-speakers. Overall, there are challenges to measure this construct given that classic 0–10 pain assessment scales may be inadequate during labour (9).

Two sections, 1 (Identification and labour admission characteristics) and 8 (Birth outcomes), were considered less complete compared to the rest. Unlike Sect. 2–7, Sect. 1 and 8 do not include variables that monitor use of the recommendations for labour and childbirth care. Although a large proportion of participants believe it was necessary to add more variables to these sections, they are variables that are traditionally recorded in medical records. The LCG is not intended to replace medical records but rather it is meant to be a tool to help providers implement the WHO intrapartum care recommendations.

The LCG indicates the frequency of assessing observations for early detection of complications, in order to avoid unnecessary interventions (such as repeated vaginal examinations). Some health care professionals did not agree on the frequency of assessments proposed. We learned from this study that further clarifications should be provided throughout supporting materials to appropriately guide clinicians on the frequency of assessments. Although the LCG suggest some guidance, this will mainly depend on a comprehensive assessment of the well-being of each woman and baby and on the local context (e.g. level of care).

This study has several strengths: a) the survey was pretested (to ensure face validity) and piloted; b) the participants were international and included a diverse sample of experienced skilled health personnel; and c) the questionnaire included both close and open-ended questions, enriching the results with qualitative data. Nonetheless, this study had some limitations. Selection bias could possibly have been introduced by limiting the languages in which the survey was available, given that certain professional cadres might only speak their native language (nurses, midwives). The majority of the survey participants were obstetricians.
Conclusion

Skilled health personnel from several countries and regions largely considered the components of the WHO next generation partograph – the LCG – relevant, clear and appropriate. While their opinions were supportive of this new labour monitoring tool, they identified few areas where the LCG could be improved or clarified in order to facilitate its adoption and use. The development of supporting and training materials will be required to guide health professionals on how to use the LCG. Further evaluation to assess the usability, feasibility, acceptability of LCG in clinical settings is warranted.

Abbreviations

CONICET - Consejo Nacional de Investigaciones Científicas y Técnicas
DI - Disagreement Index
FHR - Fetal Heart Rate
GLOSS - WHO Global Maternal Sepsis Study
HRP - Development and Research Training in Human Reproduction
IECS - Institute for Clinical Effectiveness and Health Policy
IV - Intravenous
LCG – Labour Care Guide
SP - Supine Position
UNDP – United Nations Development Programme
UNFPA – United Nations Population Fund
UNICEF - United Nations Children's Fund
WHO – World health Organization

Declarations

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The completion of the online survey implied participant consent to participate.

CONSENT FOR PUBLICATION

Not applicable.

DISCLOSURES OF INTEREST

The authors have no conflicts of interest to declare.
DATA AVAILABILITY

Full de-identified datasets are available upon request from the corresponding author.

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CONTRIBUTION TO AUTHORSHIP

OTO, MBo and FA conceived this study; VP, MBo, MBer developed the protocol and the study instruments; VP, MBo, MBer conducted the study; VP, MBer, MBel conducted the analysis; VP, AM, MBel, NK drafted the first version of the manuscript. VP, MBo, MBer, MBel, OTO, FA, NK, AM and JV reviewed and approved the final manuscript for publication.

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References

1. UNICEF. Skilled birth delivery (SBA)- Joint UNICEF/WHO database. https://data.unicef.org/topic/maternal-health/delivery-care/: UNICEF; 2018.
2. Standards for improving quality of maternal and newborn care in health facilities. Geneva: World Health Organization; 2016 (http://apps.who.int/iris/bitstream/10665/249155/1/9789241511216-eng.pdf, accessed 31 May 2019).
3. Fink G, Ross R, Hill K. Institutional deliveries weakly associated with improved neonatal survival in developing countries: evidence from 192 Demographic and Health Surveys. Int J Epidemiol. 2015. DOI:10.1093/ije/dvy115.
4. Randive B, Diwan V, De Costa A. India's conditional cash transfer programme (the JSY) to Promote Institutional Birth: is there an association between institutional birth proportion and maternal mortality? PLoS ONE. 2013;8:e67452.
5. Singh K, Brodish P, Suchindran C. A regional multilevel analysis: can skilled birth attendants uniformly decrease neonatal mortality? Matern Child Health J. 2014;18:242–9.
6. Campbell OMR, Calvert C, Testa A, et al. The scale, scope, coverage, and capability of childbirth care. Lancet. 2016;388:2193–208.
7. WHO recommendations. Intrapartum care for a positive childbirth experience. WHO guidelines approved by the guidelines review committee. Geneva, Switzerland: World Health Organization; 2018. Accessed. https://www.who.int/reproductivehealth/publications/intrapartum-care-guidelines/en/ [Accessed 7 January 2020].
8. WHO Global Maternal Sepsis Study (GLOSS) Research Group. Frequency and management of maternal infection in health facilities in 52 countries (GLOSS): a 1-week inception cohort study. Lancet Glob Health. 2020;8(5):e661–71. doi:10.1016/S2214-109X(20)30109-1. PMID: 32353314; PMCID: PMC7196885.
9. Fitch K, Bernstein SJ, Aguilar M et al, editors The RAND / UCLA Appropriateness Method User's Manual. Santa Monica, The RAND Corporation, 2001.
10. Oladapo OT, Diaz V, Bonet M, Abalos E, Thwin SS, Souza H, et al. Cervical dilatation patterns of “lowrisk” women with spontaneous labour and normal perinatal outcomes: a systematic review. BJOG. 2017. doi:10.1111/1471-0528.14930.

11. Bonet M, Oladapo OT, Souza JP, Gülmezoglu AM. Diagnostic accuracy of the partograph alert and action lines to predict adverse birth outcomes: a systematic review. BJOG. 2019;126(13):1524–33. doi:10.1111/1471-0528.15884.

12. Philpott RH, Castle WM. Cervicographs in the management of labour in primigravidae. I. The alert line for detecting abnormal labour. J Obstet Gynaecol Br Commonw. 1972;79(7):592–8.