



2025, Volume 25, March, Issue 11

AOGD BULLETIN

Shared Decision Making - Enhancing Women Emancipation



Theme

Optimising Labour Management And Support

AOGD SECRETARIAT

**Department of Obstetrics & Gynaecology
Maternity Nursing Home**

ABVIMS & RML Hospital, New Delhi - 110001

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Email - www.aogdrml2024@gmail.com

Centre of excellence for advanced Gynae Laparoscopy and Hysteroscopy

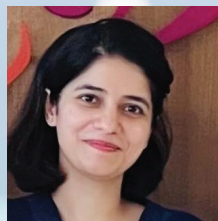


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Disclaimer

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Message from the President



President

Dear AOGDians,

Namaskar,

In the previous month, AOGD, in collaboration with Sachi Saheli, participated in an awareness program where multiple schoolgirls walked in a Pad Yatra and chanted slogans. The monthly clinical meeting was also conducted.

Labour and delivery represent one of the most critical moments in obstetric care, requiring a meticulous balance of clinical expertise, timely decision-making, and compassionate patient-centred approaches. Effective labour management directly impacts maternal and neonatal morbidity and mortality, making it a cornerstone of obstetric practice worldwide. As medical science advances, so too must our strategies for ensuring safer deliveries and better health outcomes.

The World Health Organization's updated recommendations emphasize a more patient-friendly approach, advocating for the avoidance of unnecessary interventions and promoting a supportive birthing environment. Moreover, respectful maternity care, as represented by our theme of **shared decision-making**, is central to labour management. As we progress, our goal should be to refine labour management protocols that are evidence-based, adaptable to diverse clinical settings, and prioritize both maternal and neonatal well-being.

We hope this issue of our journal on the topic of "**Optimising Labor Management and Support**" provides valuable insights into the evolving landscape of labour management and serves as a platform for knowledge dissemination and discussion.

Dr. Ashok Kumar MD, PhD, FICMCH, FICOG, FAMS

President, AOGD

Organising Chairperson, AICOG 2026

Vice Chairperson, ICOG, an Academic Wing of FOGSI

National Corresponding Editor, Journal of Obstetrics & Gynaecology of India

Director Professor & Head

Department of Obstetrics & Gynecology,

Atal Bihari Vajpayee Institute of Medical Sciences &

Dr. Ram Manohar Lohia Hospital, New Delhi

Message from the Hon. Secretary



Hon. Secretary

Dear AOGD members,

Warm greetings to all from AOGD secretariat at ABVIMS & Dr RML Hospital

Happy Holi to Everyone

As we proceed towards the last month of our annual tenure, we want to convey our gratitude all AOGD members for constant support and encouragement.

Last month was the month of public forums. We had discussions on cervical cancer, adolescent health talks and “Padyatra” on menstrual health. All of them have great relevance to public health. The last month’s bulletin was also based on adolescent health.

The month of March also carries a lot of importance. This month is the endometriosis awareness month. The World Obesity Day and the International Women’s Day also fall in this month. The fight against obesity is the need of the hour and we as medical practitioners have an important role.

This month we have chosen “**Optimising Labor Management and Support**” as our bulletin’s theme. Invariably it’s the joy of getting a new healthy life on earth which provides an obstetrician immense happiness and contentment. To fulfil our satiety the editorial team has gathered practical pearls of wisdom from the experts.

The AICOG special package has also been announced till 31st March 2025. Lets gear up for the megaevent!!!

On the occasion of womens day, dedicating this to today’s woman

बालकिा अहं बालकिा नव युग जनतिा अहं बालकिा ।

नाहमबला दुर्बला आदशिक्तिाहमम्बकिा ।।

(I am a girl, a girl of modern times. I am not feeble or powerless. I am Aadishakti, I am Ambika.)



Left to Right: Dr Vandana Agarwal, Dr Neha Pruthi Tandon, Dr Kamna Datta, Dr Geetanjali Nabiyal

EVENTS HELD IN FEBRUARY

01 February 2025

The Synergy Club in a/w The Infertility and Reproductive Endocrinology Sub Committee – Webinar 9th episode on Hyperglycemia in Pregnancy



MS
"THE SYNERGY CLUB"



in Association with
Infertility and Reproductive Endocrinology Committee of Association of
Obstetricians and Gynaecologists of Delhi (AOGD)

Chief Guests



Prof. (Dr) V. Seshiah
Padmashri Awardee in Medicine;
Professor Emeritus MGR Medical University TN



Dr Kavita N. Singh
Dean GMC Bhopal;
President AMPOGS



Dr Sharda Jain
Founder and Secretary General DGF



Dr. Anjali Kanhere
Professor and HOD CMCH Bhopal



Dr Ashok Kumar
President AOGD



Dr. Indu Chawla
Vice President AOGD

Guests of Honour

Special Guests

● Live Webinar - Episode 9 ● Hyperglycaemia In Pregnancy (HIP)

01/02/2025, Saturday 04:00pm to 06:30pm

Convenors

Program Co-ordinators



Dr Pikee Saxena
Professor LHMC New Delhi,
Chairperson Infertility
and Reproductive Committee AOGD



Dr. Monica Singh
National Executive Member ISAR,
Secretary MP-ISAR



Dr. Nitu Mishra
Asst. Professor
OBGY Dept, AIIMS Bhopal



Dr. Poorva Badkur
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OBGY Dept. GMC Bhopal



Dr. Nandini Singh Bhati
Asst. Professor
OBGY Dept. GMC Bhopal



Academic Partner:



A Public awareness session on Immunization in adolescents by Community Health & Public Awareness Sub Committee AOGD & Adolescent Health Academy Chapter of IAP

Public Awareness Online Session on Immunization for Adolescents
Organized by
AOGD Community Health and Public Awareness Subcommittee
in association with
Adolescent Health Academy Delhi Chapter
Saturday | 1st February, 2025 | 3:00 - 4:00 PM

Chief Guest
Prof. Dr. Ashok Kumar
President AOGD 2024-25

Special Invitee
Prof. Himabindia Singh
Chairperson AHA 2025

Guest of Honour
Dr. Deepa Passi
Chairperson Delhi AHA 2025

Convenor
Dr. Indu Chawla
Vice President AOGD 2024-2025

Chairpersons
Dr. Kamna Datta
Hon. Secretary AOGD 2024-2025

Chairpersons
Dr. Deepa Gupta
Chairperson CH & PAAC

Session 1 : Vaccine in Adolescents

Speaker
Dr. Aaradhana Singh

Chairpersons
Dr. Anita Sahharwal
Dr. Surbhi Singh
Dr. Seema Prakash
Dr. Sanika Bahamani

Session 2 : Panel - FAQ on Adolescent Vaccination

Moderator
Dr. Neha Gupta

Panellists
Dr. Taru Gupta
Dr. Saritha Shamsunder
Dr. Arshina Dabas
Dr. Jyoti Bhaskar
Dr. Ajay Kumar Gupta
Dr. Shivani Agarwal

Vote of Thanks : Dr. Deepa Gupta

[Click Here To Register](#)

CONFERENCE INTERNATIONAL

04 February 2025

On World Cancer Day, AOGD & FOGSI Gynecological Oncology Committee - Discussion on Cervical Cancer and importance of HPV screening at Hotel Surya, New Delhi

Deep Dive into Approaches Towards **Cervical Cancer Screening:** Understanding the Barriers and Opportunities

Share, Learn & Connect

Date: 4th Feb 2025, Tuesday
 Venue: The Surya, New Friends Colony, New Delhi
 Time: 2:00 PM - 5:00 PM (1:00 PM - 2:00 PM Lunch)

SCREEN TO SAVE

In association with FOGSI gynae Onco committee and AOGD

Agenda

Time	Topics	Speakers
2:00 PM - 2:05 PM	Welcome & Introduction	Dr. Nishi Choudhary
2:05 PM - 2:20 PM	Burden of Cervical Cancer and why this is the Screening need of the hour?	Dr. Jyoti Meena
2:20 PM - 2:35 PM	Cervical Cancer Screening Landscape: Technologies and Advantages	Dr. Ruchi Pathak
Panel Discussion 1 (Theme: Screening technologies: Pros and Cons)		
Moderator : Dr Saritha Shamsunder Chairperson : Dr Abha Singh and Dr Anita Sabharwal Experts : Dr Rupinder Sekhori, Dr Bikram Bharadwaj		
2:35 PM - 2:45 PM	WHO guidelines on Cervical Cancer Screening	Dr. Indu Chawal
2:45 PM - 2:55 PM	Optimising screening uptake: Approach towards Screening & Common Barriers	Dr. Pallavi Shukla
2:55 PM - 3:05 PM	Designing an effective Cervical Cancer Screening Protocol for a Gynae OPD	Dr. Pakhee Aggarwal
3:05 PM - 3:15 PM	Self Collection for HPV testing: Challenges and Limitations	Dr. Nilanchali Singh
3:15 PM - 3:30 PM	Q&A	Moderator, Panelists and Audience
3:30 PM - 3:40 PM	Summary and Closure Remarks	Dr. Saritha Shamsunder
Panel Discussion 2 (Theme: HPV Screening Considerations & Importance of hr HPV)		
Moderator : Dr. Shilpi Agarwal Experts : Dr Nandini Sharma Chairperson : Dr Achla Batra, Dr Bindu Bajaj		
3:50 PM - 4:00 PM	Choosing Appropriate HPV Testing Platform: Considerations (mRNA vs DNA, validations)	Dr. Rakesh Demde
	Role of LBC in triaging	Dr. Sachin Koltte
4:00 PM - 4:10 PM	Extended Genotyping: The Future of HPV Testing	Dr. Saritha Shamsunder
4:10 PM - 4:20 PM	Cost utility analysis of HPV testing	Dr. Kanika Batra Modi
4:20 PM - 4:30 PM	Management approaches in HPV positive cases	Dr. Sruthi Bhaskaran
4:30 PM - 4:45 PM	Q&A	Moderator, Panelists and Audience
4:45 PM - 4:55 PM	Summary and Closure Remarks	Dr. Shilpi Agarwal

07 February 2025

Cervical cancer Awareness Talk- Community Health and public awareness SubCommitte AOGD at Sarvodaya Vidyalaya, Sant nagar, Burari



120 students of class 8th and 9th 5 to 6 teachers
 Pathologist also educated about HPV DNA testing.
 Questionnaire performa was filled by 100 students.

11 February 2025

On the occasion of menstrual health and awareness day, AOGD members participated in the “padyatra” organized by ‘Sachhi Saheli’ in a/w AOGD



Sachhi Saheli
FIGHTING TABOOS BREAKING STIGMA

Inviting you
to Commemorate

5th FEBRUARY
Menstrual Health
& Awareness Day

We are privileged to have
Mr. Keshav Chandra, IAS
(NDMC Chairman)
as our esteemed chief guest.

Event Highlights

PERIOD FEST | Pad yatra

on 11th Feb 2025
8:30 AM onwards

Period Fest Venue: NDMC Convention Center | Pad Yatra Venue: Rajeev Chowk, Inner Circle



5

12 February 2025

Adolescent Health Subcommittee - CME on Adolescent Endometriosis by DGFS and Adolescent subcommittee of AOGD at Hotel EROS, New Delhi



Adolescent Subcommittee of AOGD & Delhi Gynaecology Forum South in association with SUN PHARMA

Cordially invites you For

Scientific Programme

Date	Time
Wednesday, 12th February, 2025	1:00 PM to 4:00 PM
Venue	Lunch
Eros Hotel Nehru Place, New Delhi	1:00 PM to 2:00 PM

Organizer



Dr. Sharda Jain (Secretary General - DGFS), Dr. Raka Guleria (President - DGFS South), Dr. Jyoti Bhaskar (Chairperson Adolescent Subcommittee AOGD), Dr. Kiranjeet Kaur (Vice-Chairperson DGFS South), Dr. Panchampreet Kaur (Secretary DGFS South)

Guest of Honor



Dr. Kamal Buckshee

Chief Guest



Dr. Alka Kriplani, Dr. Indu Chawla

Topic: Caesarean scar defect - clinicians dilemma
Time: 2:30 pm - 2:50 pm



Dr. Isha Kriplani
MBBS MS (Gold Medal) DNB
Consultant Department of Obstetrics, Gynaecology and ART Paras Health Gurugram

Chairpersons



Dr. Birbala Rai, Dr. Manju Hotchandani, Dr. Shalini Chawla Khanna, Dr. Mira Verma, Dr. Sujata Agarwal

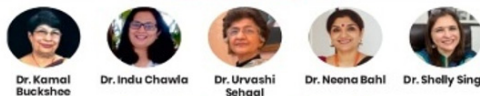
Topic and Speaker

Topic: India's First Oral GnRH Antagonist for Management for Endometriosis: ELAGOLIX
Time: 2:30 pm - 3:00 pm



Dr. Alka Kriplani
MD, FRCOG, FAMS, FICOG, FICMCH, FIMSA, FCLSDirector & Head, Deptt. of Gynaecology, Obstetrics & ART Paras Hospitals Gurugram; Professor & Head, Deptt. of Obst. & Gynae AIIMS, New Delhi

Chairpersons



Dr. Kamal Buckshee, Dr. Indu Chawla, Dr. Urvashi Sehgal, Dr. Neena Bahl, Dr. Shelly Singh

Panel Discussion

Topic: Adolescent Endometriosis: Let's tackle the culprit!
Time: 3:00 pm - 3:45 pm

Panelists:
Dr Anita Sabherwal Anand
Dr Madhu Gool
Dr Sunita Arora
Dr B B Dash
Dr Payal Choudhary

Moderators:
Dr Kiranjeet Kaur
Dr Panchampreet Kaur

Experts:
Dr Manju Khemani
Dr Jyoti Bhaskar
Dr Anjila Anreja
Dr Renu Misra

Vote of Thanks :- Dr Raka Guleria

MOC :- Dr Suyesha Khanijao



Forthcoming Events "for the month of March"

- 13th – POGS Cutting Edge Webinar – Pune Obs Gyn Society & AOGD
- 17th – Webinar on "Endometriosis beyond the basis" - ABVIMS and Dr RML hospital
- 18th – A/W FOGSI "Sampoorna"- Swasth Janam Abhiyan CME at Jaypee Siddharth Hotel
- 28th – Monthly Clinical Meeting – ABVIMS & Dr RML Hospital

From the Editors Desk



Chief Editor

As we welcome Holi-the Festive season of colours, flowers and hope, AOGD editorial board wishes all its members good health and happiness. Just as Holi symbolises the arrival of spring and renewal of life, similarly maternal health is crucial for ensuring health and wellbeing of mothers and their new born, symbolising a new beginning.

This issue brings together a comprehensive collection of articles and reviews, that explore the complexities of pregnancy and labour management. Our esteemed authors, renowned experts in the field, share their insights on topics ranging from birthing practices to clinical application of USG for labour management. This month, we also celebrate the International Women's Day. As per FIGO, World wide 800 women die each day from complications related to pregnancy and childbirth. Every 11 minutes, a woman or girl is killed by a member of her family. We acknowledge the significance of quality maternal healthcare

in empowering women and promoting healthy families, beginning from safe maternal practices and a pleasant experience during labour.

Together, we can reduce maternal and newborn morbidity and mortality, and empower mothers to thrive. We hope that this special issue serves as a valuable resource for obstetricians, gynaecologists, and healthcare professionals dedicated to providing exceptional maternal care.

We thank our esteemed authors for their invaluable contribution and welcome any kind of feedback.

Stay safe, stay healthy!

Dr. (Prof) Renuka Malik

Editor

Professor and Senior Consultant, ABVIMS & RML Hospital



Editorial Team: (Left To Right) Dr. Kanika, Dr. Preeti, Dr. Renuka, Dr. Kavita.
(Second Row Left To Right) Dr. Seema, Dr. Niharika

Thought for the month: Life and time are the world's best teachers.

Life teaches us to make good use of time, while time teaches us the value of life. —Abdul Kalam.

Alternative Birthing Positions and the Props Used for It

Dr. Poonam Varma Shiv Kumar

Director Professor, Department of Obstetrics and Gynaecology, Medical Superintendent, Kasturba Hospital, Mahatma Gandhi Institute of Medical Sciences, Sevagram, Wardha, Maharashtra

INTRODUCTION

Labour is a process of bringing together dual emotions, unbearable pain, and happiness. Labouring women generally in developing countries are not offered different birthing positions during labour as decision making is always in the hands of the providers, whether institutional or home deliveries. In developed countries, most hospitals have started offering choice of alternative birthing positions to women undergoing labour. However, in India and other developing countries, delivery in dorsal position continues to be a norm. The birthing position in which the woman delivers has a lot of impact on the ease of delivery. A woman's overall satisfaction with her birthing experience and the care she receives is deeply influenced by the often-challenging nature of childbirth. Birthing positions refer to the different postures a woman may adopt during labour. Currently, most women deliver while lying flat on their backs or in a semi-sitting posture. Less commonly, women choose upright positions, such as standing, sitting, or squatting, or opt for side-lying or hands-and-knees positions.¹ Healthcare providers like doctors, nurses, and midwives play a critical role in selecting the birthing position, which can significantly affect both the physiological and psychological aspects of a woman's labour.² Despite its importance, there is limited research that identifies the best position for women in the second stage of labour. Several studies analysed and compared the benefits and risks of popular birthing positions and explored how well-informed pregnant women are about alternative options.

WHY ALTERNATIVE BIRTHING POSITIONS ARE NEEDED, HOW ARE THEY BENEFICIAL?

There is a huge literature stating that there are massive benefits of adopting alternative birth positions -

- Alternative birthing position comes under the LABOURING RIGHTS of women in providing respectful maternity care - WOMEN CENTERED CARE.

- They are associated with a shorter second stage of labour.
- Lower visual analogue pain scale score.
- Less need for episiotomy.
- Promotes counter-nutation and nutation which helps in normal physiological birth.
- Reduced rates of instrumental delivery.
- Reduces caesarean section rate.
- Decreased demand of labour analgesia.
- Higher APGAR score compared with adopting lithotomy position.
- Decreased NICU admissions.¹
- Decreased Labour complication.
- More satisfaction and great birthing experience.³

WHAT ARE VARIOUS ALTERNATIVE BIRTHING POSITIONS OFFERED TO THE WOMEN?

The alternative birthing positions can be

1. Upright -
2. Non Upright

Upright Positions - include Flexible sacrum positions, take the weight off the tailbone

- Standing
- Sitting on a chair, leaning on a pillow or sitting on a birthing ball
- Squatting
- Kneeling
- All Four positions
- Holding Rebozo/ bar

Non Upright Positions - include Non-flexible sacrum positions, rest the mother's weight on her tailbone

- Side lying
- Lithotomy
- Dorsal position mainly

UPRIGHT positions are always a choice as Gravity Plays a Major Role in Descent of the Head and Cervical Dilatation, there is less risk of compressing the mother's aorta and there is a better oxygen supply to the baby.⁴



BIRTHING PROPS

- Birthing chair/ stool
- Bar
- Ball
- Ball and rope (rebezo)
- Bean bag
- Peanut ball
- Tub / pool for Hydro labour



CHALLENGES IN IMPLEMENTING ALTERNATIVE BIRTHING POSITIONS

- Training is mandatory to understand the positions, how to deliver, where to support and how to hold the baby.
- Acceptance by Obstetricians.
- Acceptance of Midwifery cadre who support Alternative Birthing positions fully.
- Procurement of gadgets /props.
- Lack of Awareness of ABP in labouring women, so strong BPCR Mandatory during antenatal and intranatal period.

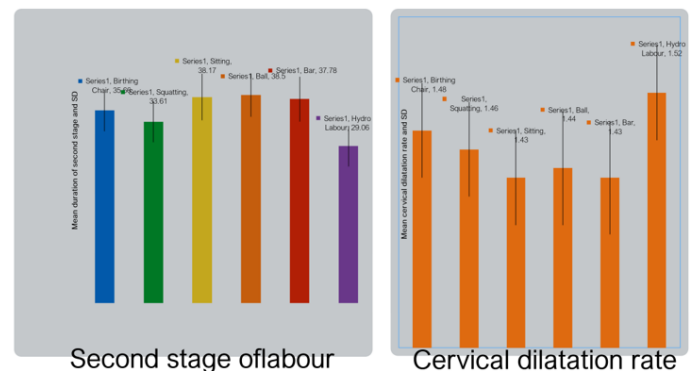
Hydrolabour – is a separate method and very well accepted by women as it works also as a non-pharmacological method of pain relief during hydrotherapy. The advantages are –

- Stress hormones are reduced.
- Pain relieving chemicals released in excess.
- Labour pain is reduced markedly.
- Shortens the duration of labour.
- Reduces incidence of instrumental delivery.
- Reduces Cesaerean Rate

ACOG recommends for most people giving birth, “no one position needs to be mandated nor prescribed” (2017), WHO concludes that women in labour should adopt any position they like, while preferably avoiding long periods lying supine, RCM also states there should be a variety of props available in the room to encourage people to try different positions. Cochrane review supports alternative birthing positions.⁵

Mahatma Gandhi Institute of Medical Sciences, Sevagram, which is a National Midwifery training institute too, delivers all low risk women in alternative birthing position. There have been distinct benefits of early cervical dilatation, reduced pain on NRS Scale, reduced episiotomies and instrumental deliveries and reduced caesarean section rates. Hydrolabour is most efficient in reducing the labour delivery interval. The birthing experience in feedback and testimonials is amazing, and the women become the peer group for spreading the awareness of alternative birthing position and women-centric care.

COMPARISON OF PARAMETERS IN DIFFERENT POSITION



CONCLUSION

Health care providers and nurses should be educated on the benefits and consequences of both the lithotomy and alternative birthing positions on maternal and neonatal outcomes.

KEY POINTS

1. The birthing position in which a woman delivers has a lot of impact on the ease of delivery.
2. The doctors, nurses and midwives have a significant role in deciding which position the woman will give birth in and on the physiological and psychological effects of the experience of a woman in labour.
3. Alternative birthing positions over the conventional posture have definite psychological and physiological advantages.
4. WHO also recommends that opportunity should be given to pregnant women to choose the type of position they want to be in during labor.
5. Any upright or lateral posture is associated with shorter second stage of labor, less intense pain, less instrumental deliveries, less abnormal heart rate pattern and fewer episiotomies.

6. Hydro labour is associated with many optimal maternal and neonatal outcomes.

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Labour Management in Obese Women

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According to WHO, Obesity is a chronic disease characterized by excess fat deposition. Obesity is measured by BMI, and a BMI of more than 30 or equal to thirty is considered to be obese. BMI during pregnancy is calculated by checking weight and height in the first antenatal consultation.¹

Obesity is one of the health problems of the developed world. The highest rates of obesity are currently seen in the Pacific islands (45-75%) and Kuwait (42%)². According to NFHS 2019-2021 overall, 40% of women and 12% of men in India have abdominal obesity. ³ Obesity is twice as common among women as men, particularly in the reproductive age group.⁴ Severe maternal morbidity or mortality is significantly increased in women with high BMI as compared to normal BMI –being 24.9/10,000 women with class I obesity,

35.8/10,000 women with class II obesity and 61.1 /10,000 women with class III obesity.¹

It's important to know the classification of obesity to understand the problem in different classes of obesity.

CATEGORY	BMI.	ASIAN
Underweight	<18.5kg/m ²	<18.5
Normal	18.5-24.99 kg/m ²	18.5 -22.9
Overweight/pre-obese	25-29.99kg/m ²	23-26.9
Obese Class I	30-34.99 kg/m ²	27-29.9
Obese Class II	35-39.99 kg/m ²	>30
Obese Class III	>40 kg/m ²	

MATERNAL BMI AS CATEGORIZED BY WHO⁵

The recommended folic acid supplementation dose (for the prevention of neural tube defects) is 5mg rather than the standard 0.4-0.5mg.⁵ Folic acid should be started one month before conception and continued during the first trimester.¹

. Obese pregnant women are more likely to have a higher incidence of complications during pregnancy such as miscarriage, pre-eclampsia, gestational diabetes, fetal macrosomia, and stillbirth.² Children of obese women face higher long-term risks of metabolic syndrome and childhood obesity. During pre-pregnancy counseling, these women should be encouraged to lose weight. Even

a small amount of weight loss before pregnancy reduces the risk of fetal macrosomia, hypertensive complications during pregnancy, and stillbirth and increases the chances of achieving normal delivery.¹

Hospitals handling these obese women should have large BP cuffs, appropriate weighing scales, large wheelchairs, appropriate USG scan couches, delivery beds, theatre trolleys, operating theatre tables, and lifting and lateral transfer equipment.¹

There is a higher risk of neural tube defects; hydrocephalus; and cardiovascular, orofacial, and limb reduction anomalies in children who are born to pregnant women who are obese.⁶ The relative risk of neural tube defects increases proportionally and linearly with increasing BMI.⁷

Another important question is how much weight obese pregnant women should gain.

The IOM guidelines recommend a total weight gain in pregnant women according to BMI.

BMI	Weight Gain
(BMI of 25–29.9)	6.8–11.3 kg (15–25 lb)
Obese	5.0–9.1 kg (11–20 lb)

Because of the limited data on pregnancy weight gain by obesity class, the IOM recommendation for weight gain is for all obese women.⁶ No weight gain or weight loss during pregnancy even in these obese women is associated with SGA below the 10th percentile and hence is not recommended. Hence it is very important to give these women appropriate diet advice.

The sensitivity of ultrasonography in detecting congenital anomalies is reduced in obesity. So, though the incidence of congenital anomaly is high in these patients, diagnosis is difficult by ultrasound. A lower sensitivity, with an increased false negative rate and missed diagnosis rate was observed for diagnosing congenital anomalies with ultrasonography in obese women compared to normal-weight women.

Plasma volume is increased in obese women, which affects measuring serum analytes. Even after adjusting for weight, the detection of Down's syndrome is not improved.

Even Cell-Free DNA has limitations in obesity. Increasing BMI is associated with decreased fetal fraction, hence Cell-free DNA test failures are seen more frequently in patients with obesity.⁸

At the first antenatal visit, every obese pregnant woman should be screened for glucose intolerance and Obstructive sleep apnea (OSA). Snoring, excessive daytime sleepiness, witnessed apneas, or unexplained hypoxia indicate sleep apnea and such a patient should be referred to a sleep medicine specialist for further evaluation.

Pregnant women with a booking BMI of 40 kg/m² or greater can have difficulty in venous access or spinal/epidural analgesia and hence should be seen by an Anaesthetist during the antenatal period.

When BMI is more than 35, assessments of fetal growth and presentation by abdominal examination could be difficult. Ultrasound can be used as a complementary method, and one should check serial assessment of growth by serial ultrasound in such cases.

Labour poses its own problem for these women. When should you deliver these women? To answer these, let's see what the stillbirth rates are in these women.

Obesity as an independent risk factor for stillbirth. The stillbirth rate and neonatal mortality are double in obese mothers.⁴ Obese women face heightened risks of gestational hypertension, gestational diabetes, macrosomia, and obesity-related hypoventilation, all of which significantly contribute to the risk of stillbirth.⁴

A retrospective study from Canada published in 2021 showed that the stillbirth rate varies according to class of obesity, rising linearly according to obesity. The risk rises in class I obesity at 39 weeks, in class II obese women from 38 weeks, and in class III obese women from 37 weeks.⁹ ACOG recommends weekly antenatal surveillance should be started beginning at 37 0/7 weeks in patients with a pre-pregnancy BMI of 35.0–39.9, and at 34 0/7 weeks of gestation in women with a pre-pregnancy BMI of 40 or greater.⁶

There is an increased risk of post-dated pregnancy in women who have higher maternal BMI in the first trimester. The incidence of spontaneous labour at term is 50% less in women with a BMI more than 35 as compared to women with a normal BMI.⁴ Restricting nutrition in women may indeed initiate labour, this was shown by a study done in Israel.

What is the place of induction of labour, knowing that patients with high BMI are more likely to go postdate and have a higher risk of stillbirth?

According to ACOG, maternal obesity alone is not an indication for induction of labour.⁶ Contrary to this, the Green Top guidelines recommend that induction of labour may reduce the cesarean section rate and adverse outcomes and should be discussed with obese women.¹ Another reason for induction of labour as stated by RCOG is planned delivery. In patients where macrosomia is suspected, induction of labour may be offered. Though the data is not robust, some authors recommend induction of labour at 38–

39 weeks in morbidly obese women.⁴ Given the significantly increased stillbirth risk, induction of labour should be done to avoid postdate pregnancy. Successful vaginal delivery can be achieved in 61.8% of class III obese women after induction of labour.

Chances of emergency Caesarean section are high in obese women and the rates may reach as high as 50% in morbidly obese women. The most common indication for cesarean section is a delay during the first stage of labour, even after oxytocin augmentation.²

Labour is prolonged and dysfunctional in obese women and intervention rates are high. It has been observed that in overweight and obese women, the median duration of labour from 4 cm to 10 cm of cervical dilation was significantly longer. Delays during the initial stage of labour tend to occur more frequently, with associated risks being 1.5 to 3 times more likely.² Considering a longer duration for the first stage of labour before performing a cesarean delivery due to labour arrest may be advisable for obese women.¹

Obese women are less mobile during labour. Localizing the fetal heart may be difficult and continuous electronic monitoring further restricts women and increases the cesarean section rate. One may have to use ultrasound to localize the fetal heart.

What is the place of VBAC in obese women? Pregnant patients with a higher BMI experience increased rates of complications during elective repeat cesarean deliveries as well as during trials of labour after a cesarean. Yet obesity is not a contraindication for attempting labour after a cesarean.

It's a good idea to have venous access established early in labour and consideration should be given to the siting of a second cannula in women with a BMI 40 kg/m² or greater.¹ Women with class III obesity have a much-increased risk of postpartum atonic hemorrhage (bleeding greater than 1,000 mL) after vaginal delivery as compared to women with normal weight.¹

An obese pregnant woman with OSA is at increased risk of hypoxemia, hypercapnia, and sudden death so anesthesia consultation should be sought during early labour.

RISKS OF SPINAL AND EPIDURAL ANESTHESIA

Spinal and epidural anesthesia may be technically difficult because of body habitus and the inability to palpate body landmarks. Spinal anesthesia in obese women may impair respiratory function for 2 hours.⁶ Epidural catheter should be placed in early labour as in case of emergency cesarean it will be of benefit. As compared to a normal-weight woman, a class III obese woman is more likely to have greater hypotension and prolonged fetal heart deceleration after epidural bolus and one should take care of these problems. For general anesthesia proper positioning of the patient. Preoxygenation is a must and fiber optic equipment availability for intubation is a great assistance.⁶

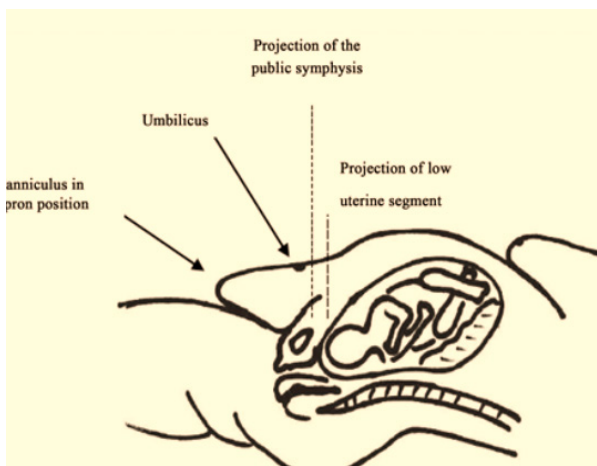
Antibiotics- Women with class one obesity are at higher risk of having wound sepsis and should receive prophylactic antibiotics.¹ A higher preoperative antibiotic dose is required for surgical prophylaxis of cesarean 30-60 minutes before skin incision. For example, a 2-g prophylactic cefazolin dose for women who weigh more than 80 kg, with an increase to 3 g for those who weigh more than 120 kg.⁶

Obesity is not an indication for the elective cesarean section, but knowing that 50% will land up in cesarean section and the technical difficulty of giving anesthesia especially if there is fetal compromise makes a strong case for planned cesarean section.⁴

Incision -The choice of incision in obese women could be Pfannenstiel. Supraumbilical vertical or supra umbilical transverse incision.

Pfannenstiel incision - In a morbidly obese woman with a panniculus, Pfannenstiel incision in a moist area is very controversial because of the risk of wound sepsis. With this type of incision, two assistants are required to retract the abdominal wall or panniculus.

Supra Umbilical Vertical Skin Incisions



Supraumbilical transverse incision⁴

Compared to supra umbilical transverse incisions, supraumbilical vertical skin incisions are associated with increased pain and wound dehiscence. With a supraumbilical vertical incision, access to the lower segment is limited, and there is an increased rate of classical cesarean section or incision at fundus. In 14 to 23 % of cases, the incision is in the upper segment of the uterus with all its complications in the next pregnancy. Operating time is also more with supraumbilical vertical skin incisions, so in an obese woman, a transverse skin incision is preferable to a vertical incision.

Supraumbilical transverse skin incision avoids incision in the pannus so wound sepsis is less. A study conducted by Tixier et al., comparing Pfannenstiel incision with supra umbilical transverse incision showed quicker delivery, better access to the lower segment, and no classical cesarean in the latter group. In Pfannenstiel, an incision one needs

2 assistants as compared to only one in the supraumbilical transverse incision. When the panniculus is a voluminous, projection of the pubic bone, it is situated above the umbilicus, hence the need for a supra umbilical transverse incision.⁴

ACOG and RCOG both recommend closure of the subcutaneous tissue with a depth greater than 2 cm as it can significantly reduce the likelihood of the incidence of wound disruption.⁶

Subcutaneous drains increase the likelihood of wound complications after cesarean deliveries and should not be employed as a standard practice.^{6,1} Routine use of negative pressure therapy to prevent wound infection is not recommended as good quality evidence is not available.¹ Vaginal cleansing before cesarean with Povidone-iodine in labouring patients and cleansing of abdominal skin with an alcohol-based solution should be done.⁶

Obesity is a risk factor for venous thromboembolism and it is recommended that pneumatic compression devices be placed before a cesarean delivery and continued postpartum for all women.⁶ Early mobilization after cesarean delivery for women without additional risks is also recommended by the American College of Chest Physicians for the same purpose.⁶

Pharmacologic thromboprophylaxis should be considered alongside pneumatic compression devices for individuals in very high-risk groups, which include factors such as increasing obesity, immobility, preeclampsia, fetal growth restriction, and infection.⁶ For the prevention and treatment of venous thromboembolism, The American College of Chest Physicians currently recommends low-molecular-weight (LMW) heparin. The commonly used dosage is 40 mg of Enoxaparin starting 12 hours after cesarean. Weight-based dosage for venous thromboembolism thromboprophylaxis is 0.5 mg/kg enoxaparin every 12 hours and is recommended for all class III obese women after cesarean delivery instead of BMI-based.⁶

There is an increased risk of surgical site infections after cesarean delivery in women who are overweight or obese class I, II, and III as compared to normal-weight women. In cases of deep surgical site infections, antibiotic treatment, along with wound exploration and debridement, may be required. However, if the infection appears superficial and there is no purulent discharge, a conservative approach with antibiotics alone might be a viable option.

Breastfeeding initiation and maintenance are low in obese women and lactational support should be given to these women.¹ Contraception advice should take into consideration the weight of the patient.

Encouraging weight loss counseling and adopting a healthy lifestyle is important during the postpartum period. According to a Cochrane review diet alone or diet plus exercise is more effective in weight loss as compared to exercise alone. By adopting a healthy diet and exercise women should be encouraged to achieve a healthier weight before another pregnancy.

KEY POINTS

1. BMI should be calculated at the first antenatal visit
2. A longer first stage of labour should be allowed in obese women before taking her for a cesarean section due to labour arrest. A separate partogram for Obese women is not available.
3. Class III women are more likely to have PPH and due measures should be taken.
4. Anesthetists should be involved in early labour.
5. Stillbirth rates are high in obese women so postdate pregnancy should be avoided
6. Mechanical thromboprophylaxis should be used in all obese women undergoing cesarean section and enoxaparin should be reserved for high-risk women.
7. Wound infection rates are high in obese women so prophylactic antibiotics should be given before all cesarean sections.
8. The postpartum period should be utilized to encourage women to adopt healthy lifestyles and lose weight before attempting the next pregnancy.

CONCLUSION

With the rising incidence of obesity, obstetricians will be facing the challenge of managing these women in labour. Allowing them longer labour will avoid many unnecessary caesareans for the arrest of labour. In class III obese women cesarean rate is as high as 50%. In class III obese women with a big panniculus supraumbilical transverse incision will be of help. Correct thromboprophylaxis will save many avoidable complications. For optimum outcome, every hospital should have a protocol to manage obese women in labour.

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AOGD Risk Management Support (ARMS) Group

One of the ways to ensure stress-free work environment and optimal patient care is mutual support among professional colleagues. An advisory group was set up last year so that they can be contacted if any of us is caught in a complex clinical dilemma/dealing with aggressive clients or is apprehensive about how to document or effectively troubleshoot a potential problem. The same group will continue to provide timely advice and is led by

Convener – Dr. Vijay Zutshi – 9818319110

Co-convener – Dr. Aruna Nigam – 9868656051

We invite suggestions from all members regarding functioning of this cell which will guide us forming the SOPs. Please mail to aogd.ucmsgtbh2023@gmail.com

Labour Care Guide – Evolution of Labour Monitoring Past vs Present

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INTRODUCTION

Normal labour and childbirth is a physiological process which is accomplished without any complications to the mother and the newborn. For the last two decades, there has been a substantial increase in induction, augmentation and preterm termination of uncomplicated pregnancies, which cause undue complications, increased caesarean delivery rates and a negative childbirth experience. There is an emerging need to set norms for high quality labour and enhancing the experience of childbirth, which postulated the pattern/ layout of a new labour monitoring tool called the WHO Labour Care Guide.¹ In 2014, the American College of Obstetricians and Gynaecologists (ACOG) redefined labour phases in an evidence-based manner to reduce primary caesarean delivery (CD) rates.² The various phases of labour were redefined along with newer recommendations for their implementation during labour monitoring. For effective application of these new definitions and recommendations, the World Health Organization (WHO) introduced the WHO Labor Care Guide (LCG), the next-generation partograph, in December 2020. The new emphasising features of the LCG were respectful and supportive maternal care throughout labour by documentation of fetal and maternal condition and progress of labour. A corresponding user's manual has also been published by WHO to support healthcare providers.³ The evolution of LCG is through various development stages of partograph mentioned below-

- **Composite Partograph:** The first of partographs based on the WHO model came in 1988 and was updated in 1994. It includes a latent phase of 8 hours and an active phase starting at 3 cm cervical dilatation. The alert line with a slope of 1 cm per hour commences at 3 cm dilatation; the action line is 4 hours to the right of the alert line and parallel to it. This composite partograph also provides space for recording descent of the fetal head, indicators of maternal and fetal well-being and medications administered. Cervical dilatation is recorded on the partograph at each vaginal examination (usually once in 4 hrs).⁴

- **Modified Who Partograph:** The composite partograph was subsequently modified in 2000, as the modified partograph. The latent phase was excluded in this partograph with other features same as the composite WHO partograph. The choice of 4 cm was made to maximally decrease the risk of interventions in multiparous women who have patulous cervixes who were not yet in labour.⁵
- **Simplified Partograph:** WHO further modified the partograph for the third time for its use by skilled attendants in health centres. This simplified partograph is colour coded. The area to the left of the alert line in the cervicograph is coloured green, suggestive of normal progress. The area to the right of the action line is coloured red, which indicates dangerously slow labour progress. The area in between the alert line and action line is coloured amber, indicating need for greater vigilance. In a crossover trial in Vellore in India, the composite partograph was rated as less user friendly than the simplified partograph.⁶
- **Who Labour Care Guide:** In February 2018, WHO published new recommendations on intrapartum care for a positive childbirth experience, which included evidence-based practices to be followed in labour.¹ To implement these new recommendations, the design of the previous partograph was reviewed and “Labour care guide” was introduced.

Modified partograph vs Labour Care Guide

Similarities

- Both uses graphical representation of the progress of labour in terms of cervical dilatation and descent of the presenting part against time.
- Formal systematic documentation of important clinical parameters describing the wellbeing of the mother and baby.

Differences

Table I: Differences in the Modified WHO partograph and LCG

Aspect	Modified partograph	Labour Care Guide (LCG)
Active phase	Begins at 4 cm of cervical dilation	Begins at 5 cm of cervical dilation
Progress Monitoring	Uses a fixed alert line of 1 cm/hour for action	Uses evidence-based time limits at each cm of dilation
Second stage monitoring	Does not include a section for second stage labour	Includes intensified monitoring in the second stage
Supportive care	No documentation of supportive care interventions	Records details on labour companionship, pain relief, posture, and fluid intake
Uterine contractions	Records strength, duration and frequency	Records only duration and frequency
Response to deviations	No mandatory response to unexpected labor observations (except cervical dilation)	Requiring documentation of deviations and corresponding responses

Advantages of LCG over Partographs

- Onset of active labour set at “5cm dilatation”
The onset of the active phase of the first stage of labour was originally defined as when the cervix was 3 cm dilated. WHO modified the partograph, which led to shifting of this point to 4 cm. The LCG uses 5 cm, a point where the median dilatation rate in low-risk women with no adverse perinatal outcomes was found to exceed 1 cm/hour (i.e. transition to a more rapid cervical dilatation progression). This reduces premature designation of the active phase of labour, which has been a major iatrogenic cause of apparent poor labour progress and unnecessary interventions.^{7,8}
- Maternal and fetal monitoring in second stage of labour
An important limitation of the actual partograph and its modifications is that the second stage of labour was not included. Second stage of labour is a critical time for the fetus as there is increased uterine activity which is compounded by maternal expulsive efforts which can lead to fetal hypoxia. Reduced vigilance at this time may lead to poor outcomes. This shortcoming has been addressed in the Labour Care Guide where more focus is given on the fetal and maternal monitoring required during the second stage.
- Recording of the plan after assessment and discussion with the woman and her companion stimulates shared decision making in the management of labour.

- Respectful maternity care can be implemented through companionship and supportive care in labour.
- LCG focuses on action oriented labour monitoring. Explicit reference ranges for each observation are given. In case of deviation from the reference values, action needs to be taken by shared decision and it has to be recorded on LCG.
- LCG is a monitoring and response tool rather than a labour record which can be completed retrospectively.

AIMS OF LABOR CARE GUIDE³

- monitor and document well-being of labouring women, fetus and the progress of labour.
- guide skilled health workers to provide supportive care throughout labour.
- assist skilled health professionals to recognize and manage emerging labour complications promptly.
- prevent unnecessary use of interventions during labour.
- Aid audit and quality enhancement of labour management.

For whom should the LCG be used?

- All women in labour irrespective of their risk status. High-risk women may require additional monitoring, support and care.

Timing for initiation of LCG?

- When women have entered the active phase of the first stage of labour (i.e. cervical dilatation of 5 cm or more).

Where should the LCG be used?

- The LCG is designed for use at all levels of care for all deliveries. The lower level settings (primary and secondary level) should have transport facility for the referral patients.

INSTRUCTIONS FOR USING LABOR CARE GUIDE

- Regular assessments of labour events.
- In case of any deviation from the expected findings, a decision to intervene in the course of labour should be taken timely.
- The approach provided to health care workers is as follows -

Assess (assess the general condition of the woman, the fetus and the progress of labour)

Record (document labour observations)

Check reference threshold (compare labour observations with reference values in the “Alert” column)

Plan (Decision regarding interventions are required or not has to be taken in consultation with the labouring woman, documentation is done accordingly).

The above-mentioned approach should be prospectively applied by the healthcare providers at each assessment throughout labour.

TIME AXIS

- The actual time for each observation is registered in the first row of the time axis (“Time”).
- The second row (“Hours”) tells about the number of hours elapsed during labour.
- The “Time” row is divided into columns in which the actual time in hours and minutes is recorded and each column represents 1 clock hour. In case the duration of labour exceeds 12 hours, the second LCG form should be commenced. An example of documenting the time plot is shown in Figure 1. The first assessment is done at 3.30 pm, so hourly assessment findings will be filled in the respective columns. If at 6.30 pm, the patient is fully dilated, recording of time in cells should continue in the second stage.

Time	3.30	4.30	5.30	6.30				
Hours	1	2	3	4	5	6	7.	
Active first stage								
6.45								
	1	2	3					
Second stage								

FIG 1: Recording of time on LCG

The LCG has seven sections which are as follows³

- Identifying information and labour characteristics at admission
- Supportive care
- Care of the baby
- Care of the woman
- Labour progress
- Medication
- Shared decision-making

SECTION 1: IDENTIFYING INFORMATION AND LABOUR CHARACTERISTICS AT ADMISSION

In section I, information about the patient is assessed and recorded as shown in Table II. Any other relevant information like age of patient, gestational age, investigations results, referral status and cause of referral and symphysiofundal height should be recorded in the medical records.

Table II: Section I of LCG

Labour Care Guide
Name Parity Labour onset- spontaneous/induced
Active labour diagnosis Date----- Ruptured membrane – Date time
Risk factors if any-

SECTION 2: SUPPORTIVE CARE

Respectful maternity care is a core component of WHO recommendations on intra-partum care. Effective communication in local language explaining the procedures and their purpose at every stage of labour is recommended. The progress of labour including examination findings and subsequent course of action should be explained to the labouring woman and her companion. This is very helpful in shared decision making. In this section of LCG, continuous provision and monitoring of supportive care is done. These supportive care measures should be offered and evaluated throughout labour and response is assessed and documented every hour (Table II).³

Table III: Section 2 of LCG

Supportive care		Alert	Active first stage		
	Companion Y: yes N: no D: woman declines	N	Y	Y	Y
	Pain relief Y: yes N: no D: woman declines	N			
	Oral fluids Y: yes N: no D: woman declines	N	N		
	Posture SP: supine M: mobile	SP			

SECTION 3: CARE OF BABY

Features monitored in section 3 of LCG with examples are shown in Table IV.

1. Fetal heart was auscultated for a minimum of 1 minute and baseline FHR was noted. FHR decelerations were recorded as N: no, E: early, L: late and V: variable. In case of any doubt, pulse rate was assessed to differentiate between fetal heart rate and souffle.
2. Amniotic fluid: membrane status or leaking was assessed.

If membranes are present, it is recorded on LCG as I: intact; or if membranes ruptured or leaking present colour of amniotic fluid was assessed and recorded

as C: for Clear fluid; M: meconium stained fluid and +, ++, +++ to represent non-significant, medium and thick meconium, respectively, B: blood stained.

3. Foetal position recorded as A: occiput anterior position, P: occiput posterior position, T: occiput transverse position,
4. Caput Succedaneum (diffuse scalp swelling) recorded as: 0: none, +, ++, +++ (marked),
5. Moulding (shape of skull and the degree of overlapping fetal head bones) was assessed and recorded as :0: none, +: sutures apposed, ++: sutures overlapped but reducible, +++: sutures overlapped and not reducible.

LCG tells about the observations for the alert column so that the health care provider can check the threshold and plan accordingly (Table IV)

Table IV: Section 3 of LCG

		Alert	Active First stage		
Baby	Baseline FHR	<110 >160	120/ min	130	130
	FHR decelerations	L	N	V	L
	Amniotic fluid	M+++	C		
	Foetal position	P, T	P		
	Caput Succedaneum	+++	0		
	Moulding	+++	0		

SECTION 5: LABOUR PROGRESS

In this section, the uterine contractions (frequency and duration), dilatation of cervix and descent of fetal head are recorded on the LCG (Fig 2).

1. Frequency and Duration of contractions- number of contractions in 10 minutes and duration of contraction in seconds (s) is recorded,
2. Cervical dilatation: cervical dilatation is assessed every 4 hours unless otherwise indicated in the active phase of labour and recorded on LCG using symbol 'x' under respective cell matching the time. In the second stage, "P" is put under the respective cell when the woman starts pushing.
3. Descent of head: descent of head by abdominal palpation was assessed and referred to part of head palpable above symphysis pubis and recorded using symbol 'O' at every assessment under respective cell in LCG.

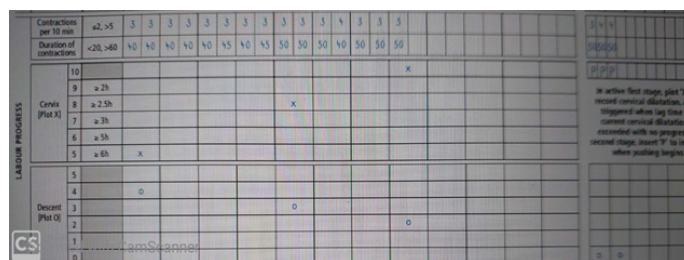


Figure 2: Section 5 of LCG

SECTION 4: CARE OF WOMEN

Women's general condition and vital parameters are monitored on the LCG by regular observation of maternal pulse (bpm), systolic blood pressure, diastolic blood pressure (mmHg) and temperature in °C (axillary) (Table V). All the parameters were assessed every 4 hours, unless otherwise indicated. Urine examination for proteinuria and acetonuria is also recorded:

1. Proteinuria (with reagent strip) and recorded as P: no proteinuria, P traces: traces of proteinuria, P1+, P2+, P3+ and
2. Acetonuria recorded as A: no acetonuria, A1+, A2+ and A3+

Table V: Section 4 of LCG

		Alert	Active First stage	
Woman	Pulse	<60 >120	100/min	96
	Systolic BP	<80 ≥140	120	120
	Diastolic BP	≥90	80	80
	Temperature	≥37.5 <35	36.5	37
	Urine	P++ A++	-/-	-/-

SECTION 6: MEDICATIONS

All types of medications used during labour were described in LCG (Fig III), like whether

1. if oxytocin has been given or not and recorded as N: no, if yes, units /l or drops /min were mentioned.
2. Other medications recorded as, N: no, if yes medication name, dose and route of administration were recorded and
3. intravenous fluids were recorded as Y: yes and N: no.

SECTION 7: SHARED DECISION MAKING

There should be continuous communication with the labouring woman and her companion all through the labour. The plan following assessment, such as continuation of routine monitoring, artificial rupture of membranes, augmentation with oxytocin, assisted delivery or caesarean section, should be discussed with the labouring woman and her companion and then entered in the section 7 on LCG, based on shared decision. (Fig 3).

Figure 3: Section 6 and 7 of LCG

The figure of LCG with all the sections is shown below in Fig IV.

WHO LABOUR CARE GUIDE																																																	
Name		Parity		Labour onset		Active labour diagnosis (Date)																																											
Ruptured membranes (Date)		Time		Risk factors																																													
<table border="1"> <tr> <th>Time</th> <th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th><th>12</th> </tr> <tr> <th>Hours</th> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td colspan="12"> <div style="display: flex; justify-content: space-between;"> ALERT ACTIVE FIRST STAGE SECOND STAGE </div> </td> </tr> </table>												Time	1	2	3	4	5	6	7	8	9	10	11	12	Hours													<div style="display: flex; justify-content: space-between;"> ALERT ACTIVE FIRST STAGE SECOND STAGE </div>											
Time	1	2	3	4	5	6	7	8	9	10	11	12																																					
Hours																																																	
<div style="display: flex; justify-content: space-between;"> ALERT ACTIVE FIRST STAGE SECOND STAGE </div>																																																	
SUPPORTIVE CARE	Companion	N																																															
	Pain relief	N																																															
	Oral fluid	N																																															
	Posture	SP																																															
BABY	Baseline FHR	<110, ≥160																																															
	FHR deceleration	L																																															
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	Fetal position	P, T																																															
WOMAN	Caput	+++																																															
	Moulding	+++																																															
	Pulse	<60, ≥120																																															
	Systolic BP	<80, ≥160																																															
LABOUR PROGRESS	Diastolic BP	≥90																																															
	Temperature °C	<35.0, ≥37.5																																															
	Uterine	P+., A+.																																															
	Contractions per 10 min	≥2, >5																																															
MEDICATION	Duration of contractions	<20, >60																																															
	Cervix (PLOT X)	10																																															
	Descent (PLOT Q)	9 ≥ 2h																																															
		8 ≥ 2.5h																																															
SHARED DECISION-MAKING		7 ≥ 3h																																															
		6 ≥ 5h																																															
		5 ≥ 6h																																															
		5																																															
ASSESSMENT	Oxytocin (U/L, drops/min)																																																
	Medicine																																																
	IV fluids																																																
	PLAN																																																
INITIALS																																																	

Fig 4: Who Labour Care Guide

Disadvantages of LCG over Partographs

- There is added workload over the attending medical team
- It can take more time for interpretation as there is no graphic depiction of the findings as compared to partograph.
- The space is limited in LCG to make comments in section 6 and 7.
- Presence of a companion may not be acceptable to the medical staff on duty as the companion may interfere with the routine hospital work.
- There may not be adequate space in the labour room at many places to accommodate both the patients and their companions at one designated area.

CONCLUSION

Labour Care Guide is a revolutionary tool in the management of labour to improve the maternal and neonatal outcomes with the added benefit of providing supportive and compassionate care to the labouring women. It can help in avoiding unnecessary medications and premature interventions, which can further enhance the outcomes of labour. Despite all the benefits, the introduction of LCG and withdrawal of modified partograph should be done gradually. The health care providers should be given ample time for understanding the implementation of LCG. Regular audits, quality assessment and pilot testing should be carried out before the implementation of LCG.

TAKE HOME MESSAGE

1. WHO labour care guide focuses on the provision of good quality and respectful maternity care to the woman in labour irrespective of the setting/resources.
2. It is an innovative action-oriented tool for analysing the progress of labour with timely reminders for necessary interventions in the intra-partum period.
3. Routine use of LCG should be promoted to decrease the caesarean rates and for providing a positive parturition experience to the woman in labour
4. The implementation of LCG should be done gradually.

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Cardiotocography-Guided Interventions: Translating Foetal Monitoring into Clinical Action

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ABSTRACT

Stillbirth, preterm birth, and neonatal brain injury continue to be pressing global issues, causing enduring psychological trauma for parents and families. Over 40% of stillbirths occur during labour, and nearly a quarter of global neonatal mortality is linked to intrapartum-related events. Continuous cardiotocography (CTG) serves as the standard for foetal assessment during labour. However, as per a Cochrane review, it did not significantly reduce adverse outcomes in newborns and has led to an increase in the number of caesarean sections. Recently, there has been promising progress in the identification of compromised foetuses through advanced technologies and artificial intelligence-based approaches. This review article seeks to summarise the latest updates and new guidelines on CTG and explores potential pathways to enhance the protection of mothers and babies in the future.

Keywords: Cardiotocography, foetal monitoring, hypoxia, STAN, FIRRST, RUPI, cCTG

INTRODUCTION

Continuous risk assessment of maternal and foetal well-being is a cornerstone of effective antenatal care. Any deviations from the normal trajectory of physiological changes may lead to serious outcomes like stillbirths or long-term neurodevelopmental disabilities. Different methods of surveillance include foetal movement count, biophysical profile, umbilical artery Doppler velocimetry and cardiotocography (CTG).

The available tools for fetoplacental monitoring have notable limitations as they are less effective at predicting stillbirths resulting from acute maternal-foetal status changes. Additionally, certain maternal conditions may cause temporary abnormal results during foetal testing that improve as the maternal condition improves. Thus, an ideal surveillance system is one that successfully detects both acute and chronic changes of fetoplacental compromise while minimising the necessity for unnecessary interventions.¹

Discussion

In this article, we aim to review the literature on Cardiotocography and Guided Interventions, translating Foetal Monitoring into Clinical Action.

Cardiotocography

The cardiotocograph (CTG) trace was introduced in the 1960s to identify foetal hypoxic stress, allowing for prompt action to prevent hypoxic ischemic encephalopathy (HIE) and perinatal deaths. CTG is the standard method for monitoring foetal well-being during the antenatal and intrapartum periods. Continuous CTG is recommended for antenatal risk factors like trial after caesarean section, suspected chorioamnionitis, fetal growth restriction and advanced maternal age, induction of labour, among others.²

It assesses the foetal heart rate (FHR) in conjunction with uterine contractions to identify any variations in FHR that may suggest foetal hypoxia and the potential necessity for expedited delivery. Four variables, i.e. baseline, variability, accelerations and decelerations are described. The baseline is the average FHR, while variability shows the fluctuation around this average. Accelerations are brief increases in FHR, indicating a healthy response. Decelerations are brief drops in FHR, which can be normal or abnormal based on their shape, timing, duration, and relation to contractions.

The FHR is controlled by the autonomic nervous system via the sympathetic and parasympathetic systems. During labour, the FHR can change due to factors like placental perfusion, foetal movements or cord compression. The interpretation of foetal heart rate tracing is based on understanding foetal responses to mechanical and/or hypoxic stress. Most human foetuses can handle increasing hypoxic stress during labour by activating compensatory responses, similar to adults during intense exercise. They also have an extra placental reserve of about 40% to 50%, allowing them to endure more stress in the second stage of labour.³

These 4 features were grouped into various categories and then randomly combined to classify CTG traces as "Normal," "Suspicious," or "Pathological." Table I shows the differences in the characterization of CTG variables by different recognised organisations.^{2,4,5}

Table I: Comparison of cardiotocography (CTG) classification criteria in the FIGO, NICE, and ACOG guidelines. ^{2,4,5}

Classification	FIGO	RCOG/NICE	ACOG/NICHHD/SMFM
Normal	HR 110–150 bpm, variability 5–25 bpm, no decelerations (except mild, short), ≥ 2 accelerations in 10 min	HR 110–160 bpm, variability ≥ 5 bpm, no decelerations, accelerations present	HR 110–160 bpm, variability 6–25 bpm, early decelerations optional, accelerations optional
Suspicious	HR 100–110 or 150–170 bpm, variability 5–10 bpm (>40 min), sporadic decelerations, no accelerations	HR 100–109 bpm, variability <5 bpm (40–90 min), variable decels, single prolonged decel (≤ 3 min)	Any tracing not in Category I or III, incl. tachy (161–180 bpm), brady w/o absent variability, periodic decelerations
Pathological	HR <100 or >170 bpm, variability <5 bpm (>40 min), recurrent severe decelerations, sinusoidal pattern	HR <100 or >180 bpm, variability <5 bpm (>90 min), late decels (>30 min), prolonged decelerations (>3 min)	Absent variability + recurrent late/variable decelerations, sinusoidal pattern (≥ 10 min), bradycardia

Management of CTG guided patterns as per NICE (2022)

NICE recommends an hourly assessment taking into consideration the antenatal and intrapartum risk factors, contractions and labour progress. Supportive decision making with a woman is recommended.

While a normal CTG is reassuring to continue normal labour, pathological CTGs suggest the urgent need to expedite delivery by instrumental delivery or caesarean section as per stage of labour. (Figure 1) Suspicious CTG requires assessment of risk factors and conservative measures, i.e. 1. Maternal position change (improves uterine flow and cord compression) by mobilization, alternate position, not supine; 2. Intravenous fluid in sepsis and epidural; 3. In excess contractions, stop oxytocin and offer tocolysis; 4. No role of oxygen supplementation and amnioinfusion

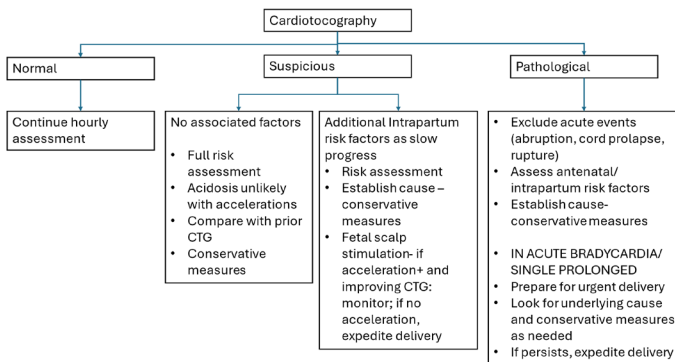


Figure 1: Figure shows the CTG guided NICE management guideline

Fallacies of the described characterizing FHR and management

- Cochrane meta-analysis demonstrated that CTG failed to establish a significant reduction in foetal metabolic acidosis and may have contributed to the rising rates of caesarean births.⁶ It is ineffective in concomitantly reducing adverse perinatal outcomes like stillbirths or cerebral palsy. Over 95% of pathological CTG traces did not result in cerebral palsy, and their positive predictive value is lower than the prevalence of cerebral

palsy in the general paediatric population, estimated at 1 to 2 per 1,000 neonates.⁷

- CTG was introduced arbitrarily into clinical practice, without any prior randomised controlled trials, regarding the interpretation of foetal heart rate (FHR) decelerations and foetal compensatory responses.⁸
- Absence of extra vigilance in uteroplacental insufficiency, chorioamnionitis and acute events like massive abruptio or cord prolapse
- Significant inter and intra-observer variability in interpretation
- Variations for the prediction of foetal academia vary significantly between the American, British & French guidelines.
- Studies have shown the effect of medications and clinical conditions on the interpretation of the CTG also needs to be given due consideration. (Table II)

Newer Approach & Concepts: A Paradigm shift

cCTG

Computerised heart rate monitoring has been preferred by various societies over traditional visual FHR analysis of CTG/ NST as it reduces interobserver inconsistency of assessment.⁴ The baseline variability may be measured in milliseconds of STV (short term variability).

An International consensus guideline

This newer guideline was developed by experts from 14 countries (in 2018, with first revision in 2024) (Table III). It recommended classifying CTG traces based on foetal hypoxia and fetal stress responses into 1. No hypoxia 2. Chronic hypoxia 3. Gradually evolving hypoxia (Compensated and decompensated) 4. Subacute hypoxia 5. Acute hypoxia 6. Chorioamnionitis and 7. other abnormal CTG patterns including double mountain peak sign, typical sinusoidal pattern, uncertain/unstable baseline.^{8,9} They elaborated the features of the various hypoxic states and made recommendations on management.^{8,9}

Table II: Effect of Medications and Clinical Conditions on Foetal Cardiotocography (CTG). ↑ = Increase; ↓ = Decrease; Decels = Decelerations; Tachysystole = >5 contractions in 10 min

Category	Examples	CTG Effects	Clinical Notes & Management
Tocolytics	Beta-agonists (Terbutaline, Ritodrine)	↑ Baseline FHR (Tachycardia), ↓ Variability	Monitor for persistent tachycardia; adjust dose if needed.
	Calcium Channel Blockers (Nifedipine)	Minimal effect, mild foetal tachycardia possible	Generally well-tolerated; monitor maternal BP.
	Magnesium Sulfate	↓ Baseline FHR, ↓ Variability, Fewer Accelerations	Reversible within hours after stopping. Monitor foetal response.
Uterotonics	Oxytocin	↑ Contraction frequency, Late Decelerations if hyperstimulation	Stop infusion if late decelerations or hyperstimulation (>5 contractions/10 min).
	Prostaglandins (Misoprostol, Dinoprostone)	↑ Uterine activity (Tachysystole), Possible foetal distress	Monitor for excessive contractions, consider tocolysis (Terbutaline) if distress occurs.
Corticosteroids	Betamethasone, Dexamethasone	↓ Variability (Transient for 24-48 hrs)	No intervention needed unless persistent abnormalities.
Analgesics & Anaesthetics	Opioids (Morphine, Fentanyl, Meperidine)	↓ Variability, Fewer Accelerations	Expect temporary effect; assess foetal movement.
	Epidural (Bupivacaine, Lidocaine)	Maternal hypotension → Foetal Bradycardia	Prevent with IV fluids, left lateral positioning, ephedrine if needed.
	General Anaesthesia	↓ Variability, Possible Foetal Depression	Use only if necessary for emergency C-section.
Antihypertensives	Labetalol, Atenolol (Beta-blockers)	↓ Baseline FHR, ↓ Variability	Monitor for persistent bradycardia. Adjust dose if needed.
	Methyldopa	Minimal effect, slight ↓ in FHR	Generally safe in pregnancy. No CTG intervention needed.
Antiepileptics & CNS Depressants	Benzodiazepines (Diazepam, Lorazepam)	↓ Variability, CNS depression	Avoid unless necessary, can cause neonatal withdrawal.
Beta-blockers	Propranolol, Atenolol	Foetal Bradycardia, ↓ Variability	Monitor closely, consider dose reduction.
Antibiotics & Antivirals	Most (e.g., Penicillins, Cephalosporins)	Minimal to no effect	Safe in pregnancy.
Clinical conditions	Chorioamnionitis	↑ Baseline FHR, ↓ Variability, Possible Late Decelerations	Administer IV antibiotics, consider early delivery if distress is evident.
	Maternal Fever	↑ Baseline FHR (Tachycardia), Reduced Variability Elevated metabolic demand may precipitate hypoxia. Acidosis and pyrexia have a cumulative effect for neonatal encephalopathy.	Identify and treat infection, administer IV fluids and antipyretics.
	Meconium-Stained Liquor	Possible Late or Variable Decelerations, Decreased Variability	Continuous CTG monitoring, consider expedited delivery if foetal distress is present.

Table III: The differences of CTG characterization in the traditional characterization and the International Consensus guideline

Features	Traditional characterization	International Consensus guideline 2018/2024
Basis	Arbitrary introduction	Based on fetal physiology, fetal hypoxia and stress responses
Management decision	Primarily pattern based	Based on the pattern of hypoxia ^{8,9}
Importance of deceleration morphology	Deceleration morphology has prime significance.	Recommend scrutinising the intervening baseline between decelerations to determine foetal response to ongoing intrapartum hypoxic stress.
Clinical correlation	Assessment suggested	Significantly includes clinical correlation like chorioamnionitis, uteroplacental insufficiency (if fetus is FIT to undergo stress of labour).
Association with perinatal outcome	No credible evidence	Correlation with neonatal acidosis, NICU admission
Use of Adjunct tests	Fetal blood sampling in suspicious CTG is included but no longer recommended by the NICE guideline	Fetal blood sampling not recommended CTG/ STAN guidelines under review

They introduced newer terminology/ concepts:⁸

- 2 types of decelerations (*Quicklie i.e.* abrupt drop from the baseline, greater than 30 bpm with a quick return to the baseline due to cord compression, causing transient hypoxaemia and *Tardy or gradual* deceleration that drops from the baseline but slowly recovers, indicate ongoing utero-placental insufficiency and may lead to acidosis in the presence of a reduced baseline variability; caused by structural damage to the placenta, like thrombosis/ infarction, that cannot be reversed by changing the maternal position or administering fluids)
- Excessive variability due to rapid hypoxia, i.e. *Zigzag pattern* In cases of rapidly evolving hypoxia, the exaggerated autonomic response is manifested as an abrupt and erratic up-and-down fluctuation of the baseline FHR variability (>25 bpm). If lasting for more than a minute, it is termed the Zig Zag pattern. This pattern, lasting over 2 minutes, has been linked to an 11-fold increase in neonatal unit admissions.⁸
- Features suggestive of Foetal Inflammation (SOFI) An increase in baseline FHR of over 10% without preceding deceleration, or a baseline FHR more than 10% higher than expected for gestational age, should be regarded as a sign of foetal distress (SOFI). Research shows that foetuses with these CTG features had significantly

higher levels of Interleukin 6 in the umbilical artery, which was linked to increased neonatal admissions. They recommend assessment for features of fetal inflammation (ascending and transplacental infections) by using Chorio duck score ≥ 5 as a clinical guide.

- Relative Utero-Placental insufficiency of labour (RUPI-L) Relative utero-placental insufficiency in labour presents as decelerations when regular uterine contractions begin, even if no abnormalities are visible in the absence of contractions. This phenomenon results from an imbalance between placental supply and foetal demand due to subtle placental dysfunction and disappears as the contractions decrease in intensity and frequency. Fetal heart rate in the upper limit and zigzag pattern may be seen.⁹
- The CAUTION checklist & How is THIS Foetus? This approach utilises the knowledge of foetal physiology and allows for individualized care by considering Antenatal CTG traces and Intrapartum checklist for FITNESS of the fetus to undergo labour (CAUTION checklist and 'How is the Fetus?' table).⁸
- Double mountain peak sign, pulse oximeter, ultrasound or fetal scalp electrode may be used to differentiate from maternal heart rate in case of suspicion.
- Maternal fluid & oxygen supplementation

International guidelines no longer recommend maternal oxygen therapy for CTG abnormalities. There is no evidence of improvement of perinatal outcomes but rather a higher prevalence of abnormal cord blood pH values (less than 7.2) in the oxygen arm according to a Cochrane review. Excessive oxygen administration can cause vasospasm of the placental arterioles, increasing the risk of foetal hypoxia and acidosis. Maternal oxygen therapy during labour should only be used to correct maternal hypoxia as in bronchial asthma, sepsis and cardiopulmonary disease. Intravenous fluids must be administered only in cases of prolonged deceleration or foetal bradycardia due to maternal hypotension, sepsis, diabetes ketoacidosis, to effectively restore the blood volume. Overzealous administration can increase maternal and neonatal morbidity due to fluid overload and electrolyte imbalance and neonatal convulsions due to dilutional hyponatremia.

Special circumstances⁹

Meconium stained liquor: Normally present post term, presence in preterm less than 34 weeks is suggestive of infection with Listeria, Ureaplasma or Rotavirus. Fetal tachycardia with MSL predisposes to chorioamnionitis. It may be associated with Meconium aspiration syndrome, thus warranting extra vigilance to signs of hypoxia and need to expedite delivery.

Hyperstimulation: Oxytocin may cause iatrogenic prolonged or frequent contractions requiring stopping of the drug, tocolysis, position change and initiation of the 3 minute rule.

Pyrexia: Elevated fetal metabolic demand increases the risk of hypoxia. Pyrexia and acidosis have a cumulative effect for neonatal encephalopathy, thus underlining the need for the commencement of antipyretics and antibiotics, careful monitoring and collective decision making.

Major abruption/ scar rupture/cord prolapse: Acute events in labour necessitate quick delivery. Tocolysis may aggravate the hypoxia by enhancing the placental separation.

Epidural analgesia: The redistribution and inadequate placental perfusion may cause acute hypoxia which is reversible with IV fluids and ephedrine.

Prematurity: Due to immature CNS, a fetus less than 30 weeks show accelerations of 10 bpm for 10 seconds, a higher baseline and reduced variability. Variable decelerations may be seen in 70-75% of fetuses between 28-30 weeks gestation.

Adjunct tests for assessment of fetal wellbeing

To improve the accuracy of prediction of CTG, some fetal tests/ interventions have been described.

Foetal Scalp Blood Sampling (FBS)

Foetal blood sampling (FBS) is an invasive procedure that collects capillary blood via a small scalp puncture. An abnormal pH is defined as less than 7.20, which is more specific than a pathological cardiotocograph (CTG) in predicting a low Apgar score at one minute⁸.

Multiple Cochrane reviews have shown that FBS does not improve long-term perinatal outcomes or reduce operative interventions.⁶ The FLAMINGO trial, comparing the accuracy of CTG monitoring versus combining it with lactate level estimation, also failed to demonstrate the efficacy of FBS.¹⁰ Recent studies have questioned the validity and reliability of the procedure, citing logistical challenges. One study noted a median result time of 18 minutes, with 9% of cases taking over 30 minutes and only 79% producing adequate samples for analysis.¹¹ Additionally, the procedure is challenging to perform in obese women and those with a cervical dilatation of less than 5 centimeters. It is also limited by the need of a gas analyzer, and that it is contraindicated in maternal infections like HIV, thrombocytopenia, prematurity, placenta previa and non-cephalic presentation.

Digital Foetal Scalp Sampling (dFSS)

A less invasive alternative to foetal blood sampling (FBS) for assessing foetal well-being during labour has been recommended: foetal scalp stimulation (dFSS). An acceleration of 15bpm for 15 seconds in the foetal heart rate in the next 5-10 minutes following foetal scalp stimulation indicates that the likelihood of a low scalp pH is only 2%.¹² dFSS offers several advantages over FBS; it is non-invasive to the foetus, can be performed during a routine vaginal examination, and is applicable even when the cervix is less than 3 cm dilated. The multicentre randomised controlled trial, Foetal Intrapartum Randomized Scalp Stimulation Trial (FIRSST), initiated in Ireland, in 2022, to determine

whether dFSS is superior to FBS may provide credible evidence.¹³

Fetal electrocardiograph (Fetal ECG) / ST-analyser (STAN)

The ST waveform analysis (STAN) method was introduced in Sweden, and was based on the principle that hypoxic changes leading to anaerobic metabolism would produce changes in the foetal electrocardiogram. An ST elevation indicates foetal response to hypoxia secondary to catecholamine release. Conversely, ST-segment depression suggests the heart may not be responding effectively. Some foetuses may not show ST changes if monitoring begins after changes occur or if no identifiable changes are present for unclear reasons.

The STAN technology, while grounded in sound physiological principles, has a major flaw in its reliance on the CTG classification tool, which uses arbitrary groupings of features into 'normal, intermediary, and abnormal' categories without solid scientific backing. This vulnerability exposes STAN to issues of pattern recognition and variability among observers, needing training and assessment. A recent meta-analysis of nine randomized controlled trials found that adding STAN to conventional CTG did not reduce severe neonatal morbidity, mortality, or operative delivery rates.¹⁴

CONCLUSION

Stillbirths and negative perinatal outcomes are traumatic for both families and healthcare professionals, often resulting in enduring psychological effects and presenting a considerable economic burden. Vigilant CTG monitoring is thus crucial to ensure the best possible outcomes for mothers and their babies. Obstetricians face the challenging task of deciding the timing and urgency of delivery to reduce stillbirths and hypoxic sequelae while balancing the risks associated with iatrogenic prematurity. The ideal fetoplacental monitoring tool should be accurate, non-invasive, affordable, and easily scalable, especially in out-of-hospital and low-resource settings. Machine learning and artificial intelligence advancements present an opportunity to create automated tools for remote monitoring and improved accessibility.

KEY POINTS

- Fetal surveillance aims to reduce stillbirths and neonatal morbidity and mortality related to intrapartum asphyxia. Cardiotocography is the standard tool used for intrapartum fetal monitoring.
- Cochrane review has demonstrated that the use of continuous CTG is associated with rising caesarean section rate without reducing the rate of cerebral palsy or neonatal mortality.
- There is variability in different guidelines on CTG

interpretation.

- International consensus guidelines 2018/2024 recommend classifying CTG traces based on foetal hypoxia and stress responses.
- Adjunct tests may aid CTG in the management decisions. Computerised CTG interpretation reduces the interobserver variability. Future ongoing research studies comparing fetal blood sampling and digital scalp stimulation may help establish the better adjunctive strategies to plan clinical action.

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Monthly Clinical Meetings AOGD Calendar 2024-25

Date	Hospital
28th March, 2025	RML Hospital
25th April, 2025	LHMC & Smt Sucheta Kriplani Hospital

Intrapartum Ultrasonography

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INTRODUCTION

Management of labour has been the cornerstone of Obstetrics since times immemorial. The challenges of making the intrapartum journey safe for both the fetus and the mother have led to numerous refinements in the assessment and prediction of progress of labour. Whenever it seems that the progress is unsatisfactory, a decision for operative vaginal delivery or cesarean section may be taken to allow a birth that is safe to both mother and fetus. This has undoubtedly led to a significant increase in the rates of intervention in labour and raised questions about the validity of the assessment which was largely clinical depending on manual palpation and digital vaginal examinations till the last century. Discrepancy between two observers is not unknown during clinical labour assessments¹ and in the early part of this century, several Obstetricians began exploring the advantages of using ultrasound as an objective tool of assessing labour.² As the technique and ultrasound machines are improving, there seems to be a renewed interest in intrapartum sonography.

Establishing the sonoanatomy of the maternal pelvis and the journey of the fetal head has now established the importance of ultrasound in predicting the progress of labour. The two specific situations in which ultrasound is very useful is in suspected delay or arrest of first or second stage and in assessing the need and feasibility of an operative vaginal delivery.

Indications for ultrasound evaluation in labour³

- Slow progress or arrest of labour in the first stage.
- Slow progress or arrest of labour in the second stage.
- Ascertainment of fetal head position and station before considering or performing instrumental vaginal delivery.
- Objective assessment of fetal head malpresentation.

Technical aspects of Intrapartum ultrasound

Probe preparation: A usual curvilinear probe of 3-5 Hz can be used for trans-abdominal and trans-perineal measurements. For trans-perineal measurement, the probe can be covered using a sterol probe cover with the USG gel smeared inside and outside the cover to minimize air gaps.

Assessment of fetal head position

Fetal head position is assessed by the transabdominal route by evaluating the head in transverse and sagittal sections.⁴ The probe can be kept on the fetal thorax to assess the position of the spine and run downwards to get a proper orientation – the lie of the fetus and the position of the occiput can then be described accurately. Some authors have suggested drawing a circle and denoting the occipital position about points denoting timings of a clock.²

Assessment of fetal head station

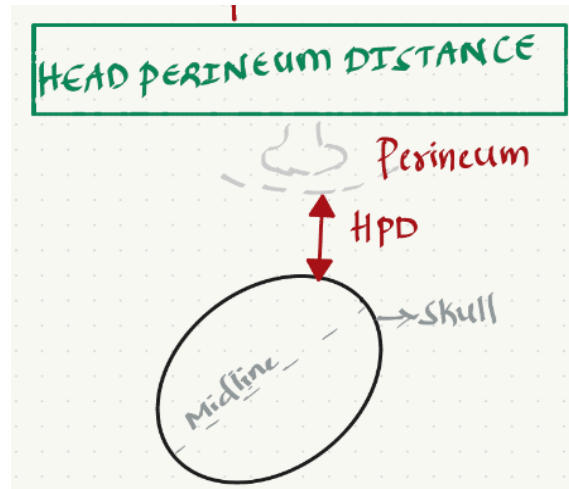


Figure 1: Head perineum distance

Intrapartum ultrasound based evaluation of fetal head station is best done by transperineal ultrasound in the sagittal or transverse plane. The transducer that is duly covered can be placed in between the labia majora or the fourchette and the soft tissue compressed completely against the pubic bone with the mother in a semi-recumbent position. Head-perineum distance (HPD) as shown in Fig 1 is measured in a frontal transperineal scan as the shortest distance from the outer bony limit of the fetal skull to the perineum. This distance represents the part of the birth canal yet to be passed by the fetus.⁵ HPD cannot be compared directly with the clinical assessment of fetal head station (from -5 to +5) because it does not follow the curve of Carus but some authors have suggested that head station 0 to correspond to a HPD of 35-36 mm while HPD of 38mm corresponds to midcavity and hence it can be used to assess possibility of vaginal delivery.⁶

Fetal Head Direction

Fetal head direction is also an indirect marker of head station and is represented by the angle between the longest “recognizable” axis of the fetal head and the long axis of the pubic symphysis, measured in a midsagittal transperineal view. It is categorised as follows:

- ‘head down’ (angle $<0^\circ$),
- ‘head horizontal’ (angle 0° – 30°)
- ‘head up’ (angle $>30^\circ$). The

The change in these angles indicates changing head direction as it descends towards the pelvic floor, from downward to horizontal and then upwards. Once the direction is upwards (“Head up”) one can predict an easy extraction with an assisted vaginal delivery. Such reassurance will be immensely helpful to clinicians planning application of instruments in labour.

Assessment of fetal head descent (progression)

Observational studies have reported that serial intrapartum sonography to assess the progression of head station over time is better than serial digital examinations.⁷ Angle of progression (AoP)/angle of descent is the angle between the long axis of the pubic bone and a line from the lowest edge of the pubis drawn tangential to the deepest bony part of the fetal skull (Fig 2). It is the better and reproducible parameter for assessment of fetal head descent and it has been shown that measuring the AoP has a short learning curve. The angle of progression has been extensively studied and after comparing AoP and fetal head station, some authors have suggested that an AoP of 116 degrees corresponds to a head station of 0.⁸

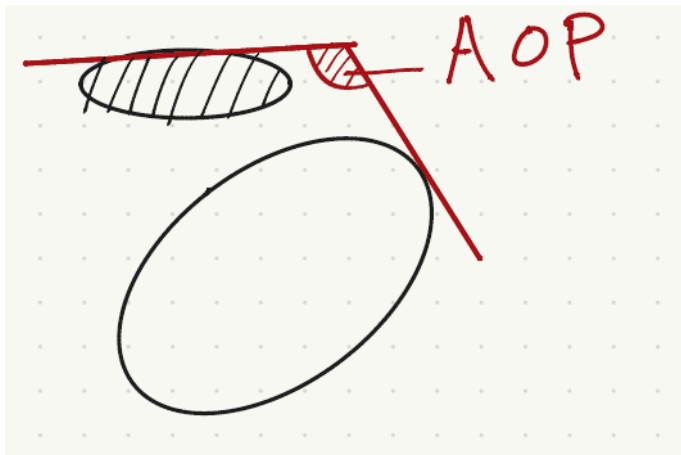


Figure 2: Angle of Progression(AoP)

Midline Angle

Midline angle (MLA) is measured in the axial plane, transperineally, and this angle is formed by the echogenic line interposed between the two cerebral hemispheres (midline) and the anteroposterior axis of the maternal pelvis (Figure 3)

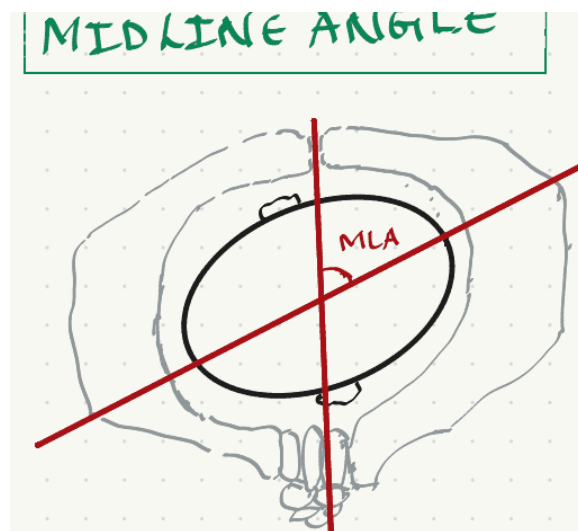


Figure 3: Midline angle

MLA is a distinct entity and it considers the angle of head rotation as an indicator of the progress of labour. Many researchers⁹ have observed the significant correlation between head station assessed clinically and rotation as represented by MLA on the intrapartum sonography. After excluding occiput posterior cases, they found that an MLA of less than 45 degree usually corresponds to a head station of $\geq +3$ cm and is thus predictive of successful vaginal birth. The MLA was originally described as an angle about the maternal pelvis, but fetal head position can be represented using positions on a clock face in the same way as described for transabdominal imaging.

In addition to the established parameters, several new anatomical relationship-based parameters have been described in assessing progress of labour sonographically. The progression distance (PD) and head–symphysis distance (HSD) are examples of potentially useful measurements that have not been widely studied.

Reporting the Intrapartum sonogram

There are some important points to be reported after performing an ultrasound in labour³ and these include the following:

- number of fetuses
- presentation and lie of the fetus
- fetal heart rate
- Occiput and spine position
- placental position about the lower segment/internal os

The above parameters can be assessed by TAS and TVS may be needed for placental position in doubtful cases.

In cases where second stage progress is to be documented, trans-perineal assessment of the following is warranted:

- Angle of progression (AoP)
- Head–perineum distance (HPD)
- Direction of the fetal head concerning maternal pubic symphysis
- The Midline angle (MLA)

Although clinicians use intrapartum ultrasound just as an auxiliary method of monitoring labour – the basic regulations of the PCPNDT rules and documentation should be followed and even a proper report must be documented in the notes.

CONCLUSION

There is no doubt that the role of ultrasonography will increase further in the labour room and it will help document labour events objectively. As per the current guidelines, “ultrasound should be used as an adjunctive method and not as a substitute for clinically indicated digital vaginal examination”.³ As with any other technology in medicine, the value of clinical judgement cannot be undermined and new technology will only help but not replace the clinician.

KEY POINTS

1. Ultrasound facilitates objective measurement and precise documentation of findings found during intrapartum assessment.
2. Two main conditions in which ultrasound is particularly useful are to confirm the arrest or delay of first and second stage of labor and in deciding for instrumental vaginal delivery.
3. PCPNDT rules apply during intrapartum ultrasound examination.

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1. Hematuria in pregnancy: An Obstetric red flag

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CASE

A 32-year-old G3p212 with previous 2 cesarean, at 33 weeks+3 day POG, presented as a referred case of severe Anemia with hematuria with acute febrile illness. She c/o Fever x1 day, breathlessness x 1 week and intermittent dysuria, urinary retention which was relieved after passage of clots with hematuria x 1.5 months. She was booked with regular antenatal checkups. She was evaluated and treated as a case of urinary tract infection in the previous hospital. Previous four obstetric ultrasounds done were reported normal. On examination she was sick looking with tachycardia, tachypnea, severe pallor, afebrile. Abdominal examination- Uterus ~ 34 weeks with single live fetus in longitudinal lie, cephalic, normal tone, relaxed. No vaginal bleeding seen. On bladder catheterization, 10 ml bloody urine obtained. Investigations revealed Hb- 4 gm/dl, TLC- 28,000/dl with slightly deranged LFT's, normal KFT with ABG s/o metabolic acidosis with Increased serum Lactate s/o sepsis. On doing Ultrasound, the Placenta was anterior covering the cervical os with features s/o percreta with clot inside the bladder. She was stabilized, sepsis bundle initiated, RCC transfused, continuous bladder irrigation

done. Classical cesarean section done f/by retrograde hysterectomy with repair of bladder rent (formed while dissection of densely adherent bladder. Blood loss was ~ 2.5 l, blood product supplementation done accordingly. Mother and Baby were discharged on Day 33.

DISCUSSION

Incidence of PAS is increasing and hence patients with risk factors such as previous cesarean section should be evaluated carefully for placental location and features of PAS and even if ultrasound is reported as normal clinical risk factors (previous cs & placenta previa) should alert us and guide us with regards to management. All obstetricians should be well versed with ultrasound features of PAS. Hematuria due to PAS with bladder invasion is rare. Management includes a multidisciplinary team approach, cystoscopy (for confirmation when suspecting bladder invasion), ureteric stenting, hysterectomy with partial cystectomy (focal bladder invasion), conservative surgery-leaving placenta insitu (extensive bladder invasion) or uterine myometrial resection with placenta with partial cystectomy.

2. Perplexity of Paraplegia in Pregnancy

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Assistant Professor¹, Senior Resident^{2,6}, Professor³, Senior Consultant⁴, Dir. Professor⁵

ABSTRACT

BACKGROUND Hemangiomas are benign vascular tumors that can occur in various locations, including the spine. Pregnancy can trigger the growth of hemangiomas, leading to aggressive behaviour like compressive myelopathy and posing challenges in timing of treatment considering fetal survival and optimizing neurological recovery.

CASE PRESENTATION

We report a case of an aggressive hemangioma in a 25-year-old pregnant woman at 33 weeks of gestation.

The patient presented to us with progressively increasing backache, numbness and tingling of lower limbs, leading to paraplegia and urinary retention. Imaging studies revealed an expansile hemangioma in the thoracic spine at T-11 level compressing the spinal cord. Multidisciplinary team approach involving the neurosurgeon, paediatrician and anaesthetist was followed. Patient induced and delivered a healthy baby vaginally. In her postpartum period, she was taken up for decompression surgery, her postoperative recovery was excellent with near complete reversal of neurological symptoms including bladder control.

DISCUSSION

Aggressive hemangiomas are rare but the commonest spinal tumor in pregnancy. Pregnancy-related changes can trigger their growth, leading to neurological symptoms of compressive myelopathy. Immediate surgical decompression followed by definitive treatment.

CONCLUSION

Early recognition, prompt treatment and multidisciplinary care can improve outcomes for both mother and fetus.

3. Smooth to Stubble: A Hair Raising Feminine Paradox

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INTRODUCTION

Hyperandrogenism is an uncommon presentation of ovarian tumors. Virilizing ovarian tumors account for less than 1% of all ovarian cancers. Granulosa cell tumors (GCTs) are rare neoplasms and are mostly estrogenic. Androgen secreting GCTs are extremely rare and only 53 cases have been reported in literature in the last six decades.

Case Summary

A, 44-year-old P2L2 lady, presented with progressive virilization over the past four years with generalized excessive hair growth, hoarseness of voice, amenorrhea and abdominal heaviness. Examination revealed obesity, hypertension (BP 144/90mmHg), severe hirsutism (Ferriman Gallway Score: 32/36), clitoromegaly, and a large abdominopelvic mass corresponding to 32 weeks size gravid uterus. Imaging confirmed an 18 x 16 x 14 cm right ovarian tumor. Her serum free testosterone was highly raised; the serum DHEAS was normal. She underwent staging laparotomy, and histopathology revealed an adult type granulosa cell tumor (AGCT) with microscopic omental involvement (Stage III A2). Patient was referred to the oncology centre for chemotherapy after stitch removal.

Postoperatively, testosterone levels declined, and follow-up visits revealed subsequent reduced hair growth after a few months.

DISCUSSION

Granulosa cell tumors (GCTs) are rare ovarian sex cord-stromal tumors (2-5% of ovarian malignancies). The androgenic variant is even rarer with incidence less than 3% of all GCTs. Androgen excess in GCTs may result from luteinization of tumor cells, FOXL2 mutations, or aromatase enzyme downregulation. Surgical excision is the primary treatment, with adjuvant chemotherapy in advanced cases. Despite their indolent nature, GCTs have high recurrence rates requiring lifelong follow-up. Mortality is high if recurrence occurs. Reassurance and counseling are necessary for the virilizing features and also slow regression of symptoms.

CONCLUSION

This case underscores the rarity of androgenic GCTs and highlights the need for timely diagnosis and multidisciplinary management.

Journal Scan

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Dept of Obstetrics and Gynaecology

Impact of WHO Labor Care Guide on Reducing Cesarean Sections at a Tertiary Center: An Open-label Randomized Controlled Trial

Divya Pandey MS, Rekha Bharti MD, Anjali Dabral MD, Zeba Khanam MD

AJOG Global Rep 2022 July

BACKGROUND

The World Health Organization Labor Care Guide was introduced in December 2020 to implement World Health Organization (WHO) guidelines on intrapartum care for a positive childbirth experience.

OBJECTIVE

This study aimed to determine the effect of the WHO Labor Care Guide on labor outcomes, especially in reducing primary cesarean deliveries, and its acceptability by healthcare providers.

STUDY DESIGN

This open-label randomized control trial was conducted from September 2021 to December 2021 on 280 low-risk antenatal women admitted for delivery at a busy tertiary care institute in North India. After informed consent, women were allocated into the study and control groups. Labor monitoring was performed using the WHO Labor Care Guide in the study group and the World Health Organization–modified partograph in the control group. Women who had a cesarean delivery in the latent phase of labor were excluded from the study. The primary outcome was mode of delivery, whereas the secondary outcomes were duration of active labor, maternal complications (postpartum hemorrhage and puerperal sepsis), duration of hospital stay, Apgar score at 5 minutes, and neonatal intensive care unit admission. The labor outcomes in both groups were compared. In the study group, the acceptability, difficulty, and satisfaction levels of the users were assessed using a 5-point Likert scale. The “learning

curve” for the use of the Labor Care Guide (LCG) was determined. SPSS software (version 21.0; IBM Corporation, Chicago, IL) was used for statistical analysis.

RESULTS

After excluding women who underwent cesarean delivery in the latent phase, 136 women in the study group and 135 women in the control group were observed for labor outcomes. The cesarean delivery rate was 1.5% in the study group vs 17.8% in the control group ($P=.0001$). The duration of the active phase of labor was significantly shorter in the study group than in the control group ($P<.001$). The 2 groups were similar in terms of maternal complications, duration of hospital stay, and Apgar score. The learning curve took average levels of 6.50 and 2.25 Labor Care Guide plots to shift from “very difficult” to “neutral” and “neutral” to “easy,” respectively. After an initial learning curve, acceptability and satisfaction levels were found to be high in the WHO Labor Care Guide users.

CONCLUSION

The WHO Labor Care Guide is a simple labor monitoring tool for the reducing primary cesarean delivery rate without increasing the duration of hospital stay and fetomaternal complications

EDITOR'S COMMENT

WHO Labor Care Guide is a very useful tool in low risk women in active phase of labor. Minimal or no intervention should be done in women without any high risk factors. This not only ensures low caesarean and high delivery rates but also reduces duration of active phase in these women.

Effectiveness of the modified WHO labour care guide to detect prolonged and obstructed labour among women admitted at publicly funded facilities in rural Mbarara district, Southwestern Uganda: an ambispective cohort study

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BMJ 2024

BACKGROUND:

Obstructed labour, a sequel of prolonged labour, remains a significant contributor to maternal and perinatal deaths in low- and middle-income countries.

OBJECTIVE:

Evaluated the modified World Health Organization (WHO) Labour Care Guide (LCG) in detecting prolonged and or obstructed labour, and other delivery outcomes compared with a traditional partograph at publicly-funded maternity centers of rural Mbarara district and City, Southwestern Uganda.

METHODS:

Since November 2023, we deployed the LCG for use in monitoring labour by trained healthcare providers across all maternity centers in Mbarara district/City. We systematically randomized a total of six health center IIIs (HCIIIs) out of 11, and all health center IVs (HCIVs), reviewed all their patient labour monitoring records for their first quarter of 2024 (LCG-intervention) and 2023 (partograph-before LCG introduction). Our primary outcome was the proportion of women diagnosed with prolonged and or obstructed labour. Our secondary outcomes included; tool completion, mode of delivery, labour augmentation, stillbirths, maternal deaths, Apgar score, uterine rupture, postpartum haemorrhage (PPH). Data was collected in RedCap and analyzed using STATA version 17. Statistical significance was considered at $p < 0.05$.

RESULTS:

A total of 2,011 women were registered; 991 (49.3%) monitored using the LCG, and 1,020 (50.7%) using a partograph, 87% (1,741/2011) delivered from HCIVs and 270/2011 (13%) from HCIIIs. Mean maternal age (25.9; SD=5.6) and mean gestation age (39.4; SD=1.8) were similar between the two groups. A total of 120 (12.4%) cases of prolonged/obstructed labour were diagnosed (100 for LCG versus 20 for partograph), with the LCG having six times higher odds to detect/diagnose prolonged/obstructed labour compared to the partograph (aOR=5.94; CI 95% 3.63–9.73, $P < 0.001$). Detection of obstructed labour alone increased to 12-fold with the LCG compared to the partograph (aOR=11.74; CI 95% 3.55–38.74, $P < 0.001$). We also observed increased Caesarean section rates (aOR=6.12; CI 4.32–8.67, $P < 0.001$), augmentation of labour (aOR=3.11; CI 95% 1.81–5.35, $P < 0.001$), and better Apgar Score at 5 minutes (aOR=2.29; CI 95% 1.11–5.77, $P = 0.025$). The tool completion rate was better for LCG compared to (58.5% versus 46.3%), aOR=2.11; CI 95% 1.08–5.44, $P < 0.001$. We observed no differences in stillbirths, maternal deaths, postpartum haemorrhage (PPH) and uterine rupture.

CONCLUSIONS.

Our data shows that LCG diagnosed more cases of prolonged and or obstructed labour compared to the partograph among women delivering at rural publicly funded facilities in Mbarara city/district.

EDITOR'S COMMENTS

Labour Care Guide is a helpful tool in detecting cases of prolonged and obstructed labour. There were however no differences in stillbirths, maternal deaths, PPH and uterine rupture. More controlled and powered studies are needed to evaluate and compare LCG and partograph. This can serve as a future prospective trials.

Obstetric Outcomes by Hospital Volume of Operative Vaginal Delivery

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JAMA

IMPORTANCE

Characterizing hospital-level factors associated with adverse outcomes following operative vaginal delivery (OVD) is crucial for optimizing obstetric care.

OBJECTIVE

To assess the association between hospital OVD volume and adverse outcomes.

Design, Setting, and Participants

This was a retrospective cohort study of OVDs in California between 2008 and 2020. OVD was determined using birth certificate and International Classification of Diseases, Ninth Revision, Clinical Modification or International Statistical Classification of Diseases, Tenth Revision, Clinical Modification codes. This study used linked vital statistics and hospital discharge data from California. The study included singleton, nonanomalous, full-term deliveries with vertex presentation. Data analysis was performed between June 10 and October 23, 2024.

Exposure Hospital OVD volume was categorized by the proportion of OVDs performed among all deliveries, grouped into low (<5.2%), medium (5.2%-7.4%), and high (\geq 7.4%) volume.

Main Outcomes and Measures

Adverse outcomes for birthing individuals included obstetric anal sphincter injuries, cervical lacerations, and postpartum hemorrhage. Neonatal outcomes included shoulder dystocia, subgaleal hemorrhage, intracranial hemorrhage, facial nerve injury, and brachial plexus injury (BPI). χ^2 and multivariable Poisson regression analyses were used to assess the association between hospital OVD volume and outcomes.

RESULTS

Among 306 818 OVDs (mean [SD] birthing parent's age, 28.5 [6.2] years; 155 157 patients with public insurance [50.6%]), hospitals with low OVD volume had an increased proportion of obstetric anal sphincter injury compared with hospitals with medium and high volumes (12.16% [7444 patients] vs 11.07% [10 709 patients] vs 9.45% [14 064 patients]). Hospitals with low volume also had a higher proportion of adverse neonatal outcomes, including shoulder dystocia (3.84% [2351 patients] vs 3.50% [3386 patients] vs 2.80% [4160 patients]), subgaleal hemorrhage (0.27% [165 patients] vs 0.18% [172 patients] vs 0.10% [144 patients]), and BPI (0.41% [251 patients] vs 0.30% [291 patients] vs 0.20% [301 patients]) compared with hospitals with medium and high volume. In multivariable analyses, low OVD volume remained associated with increased risk of obstetric anal sphincter injury (adjusted risk ratio [aRR], 1.36; 95% CI, 1.14-1.62), shoulder dystocia (aRR, 1.30; 95% CI, 1.10-1.52), subgaleal hemorrhage (aRR, 2.57; 95% CI, 1.55-4.24), and BPI (aRR, 1.73; 95% CI, 1.30-2.29) compared with hospitals with high OVD volume. After multivariable analysis, medium OVD volume remained associated with increased risk of subgaleal hemorrhage (aRR, 1.72; 95% CI, 1.04-2.86) and BPI (aRR, 1.35; 95% CI, 1.02-1.79) compared with high OVD volume.

CONCLUSIONS AND RELEVANCE

This study found that undergoing OVD at hospitals with low OVD volume was associated with adverse perinatal outcomes compared with hospitals with medium and high OVD volumes.

EDITOR'S COMMENT

Operative vaginal delivery, though a dyeing art in developed countries is a very essential skill in developing countries. The hospitals with low volume of operative vaginal deliveries had both increased fetal and maternal complications. Further exploration of the reasons for these differences and prevention of these differences is needed to improve obstetric outcomes.

News Flash

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The Indian EXPRESS
JOURNALISM OF COURAGE

INDIA TODAY

News / Trending / Trending in India / Kerala woman gives birth on KSRTC bus, driver praised for prompt response

Kerala woman gives birth on KSRTC bus, driver praised for prompt response

During a journey from Thrissur to Thottipalam in Kozhikode, a woman from Malappuram experienced labour mid-air.



News / Trending News / Brussels Airlines flight attendant helps passenger deliver baby mid-air. Read post

Brussels Airlines flight attendant helps passenger deliver baby mid-air. Read post

In a now-viral post on LinkedIn, Brussels Airlines shared how a flight attendant and other passengers helped a woman, who went into labour, deliver her baby mid-air.

“Learning how to deal with labour”

Obstetricians’ forte or a life skill ?



A baby was born mid-air on Brussels Airlines flight. (Photo: Brussels Airlines/LinkedIn)

India Today Trending Desk
News Desk | 120147215 | Feb 24, 2025 | 17:29 IST

We are used to seeing celebrity maternity photo shoots on Page 3 these days. But there was something different about pregnancy and labour that caught my eye, on February 25th.

It was the arrival of baby Fanta, truly Bollywood style. Her mother developed contractions soon after the flight took off. The flight attendant and the crew were alerted as the water broke a while later. While the captain was quick to divert the flight back to Dakar, baby Fanta decided to be born midair, of course with the help of the flight attendants and other passengers. Another incident where a woman in labour was assisted in a moving bus was published recently. There are a few more.

One ponders, if CPR, basic life support, managing labour are life-saving and taught to special forces, flight attendants, etc, how many of the general masses have a clue about this precious life-saving skill. Movies such as 3 idiots garnered

so much praise for the innovation in labour by IIT alumni. Is it possible to make it mandatory for schools and colleges across streams to include this in their curricula to make it safe for women who have to face the threatening instance of going into labour during their journeys.

Train personnel, flight attendants, bus drivers and conductors, almost everyone, including obstetricians, for that matter, should be clued in as to how to deal with labour in the absence of any fancy hospital equipment. Charity begins at home! How about starting to teach our medical students, how to manage labour in such situations. Once we develop these modules, they can very well be taken up for teaching the masses.

Let’s deal with labour, not remain confined to hospitals and obstetricians, because someone like baby Fanta, can have other plans!

Snitch Snatchers

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- The commonest cause of prolonged first stage labour is:
 - Pelvic abnormality
 - Malposition
 - Inefficient uterine contraction
 - Deflexed head
- The site of perforation for craniotomy in brow presentation of a dead fetus is
 - Frontal bone
 - Anterior fontanelle
 - Parietal bone
 - Roof of orbit
- Which complication is more likely with vacuum extraction than with use of forceps
 - Skull fracture
 - Hyperbilirubinemia
 - Perineal trauma
 - Facial nerve palsy
- The fetus of an obese mother is exposed to increased levels of the following components which may have a long term effect, except
 - Lipids
 - Insulin
 - Steroids
 - Glucose
- Acute MI occurs most commonly in
 - Post partum period
 - During labour
 - 2nd trimester
 - 3rd trimester
- Which of the following drugs is most commonly associated with development of pulmonary edema in a pregnant patient
 - Indomethacin
 - Terbutaline
 - Magnesium sulphate
 - Atosiban
- The risk of transmission of herpes is low in vaginal delivery if
 - visible lesion or prodromal symptoms are absent at the time of delivery
 - if there are prodromal symptoms but no lesions
 - if the lesions are close to healing
 - if the herpes outbreak occurs late during the third trimester
- Which of the following drugs is considered relatively safe in pregnancy
 - Macrolides
 - Aminoglycosides
 - Fluoroquinolones
 - Sulphonamides
- Following are accepted positions of breast position except
 - Cradle position
 - Lying down position
 - Football position
 - Standing up position
- In case of shoulder dystocia the mobility of which joint may help in the delivery
 - Pubic symphysis
 - Sacrococcygeal
 - Sacroiliac
 - All

Answer Key to February Quiz on Adolescent Health: Nurturing the Future

- 2-3 Years
- Benign palpable mass
- Too little sleep
- Yolk sac tumor
- Endodermal sinus tumor
- Anovulation
- Common in old age
- Immature teratoma
- Von Willebrand disease
- Upper leg

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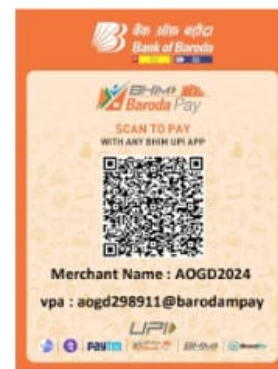
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