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INDIAN SOCIETY OF PERINATOLOGY & REPRODUCTIVE BIOLOGY-DELHI CHAPTER

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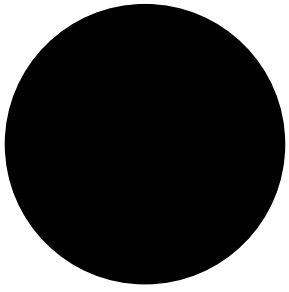


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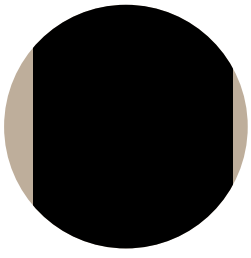
Advancing Maternal & Fetal Health Through Knowledge

ISOPARB DELHI CHAPTER
NEWSLETTER
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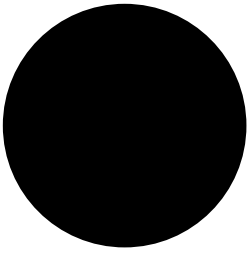
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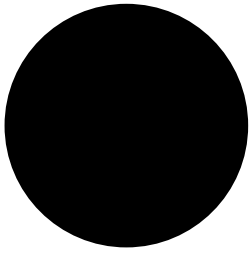
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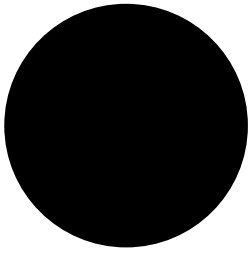
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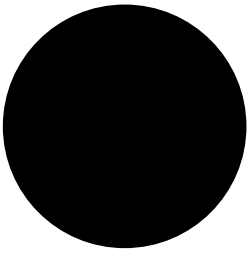
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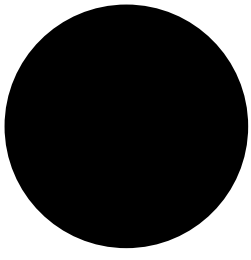
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Index

S. No.	Topic	Page Number
1.	From the Editors' Desk	4
2.	Stillbirth Classification Systems: Making Every Case Count *Anupma*	5
3.	Reduced Fetal Movements: The Red Flag We Cannot Ignore *Mansi Kumar, Aishwarya Kapur*	10
4.	Breaking Bad News: The Medicine of Compassion *Menka Verma*	13
5.	ISOPARB-Delhi Chapter: Report of Monthly CME	17
6.	Stillbirth Workup: What Should we Investigate? *Priyanka Dahiya*	18
7.	Genetic Testing After Stillbirth: Who,When And Why? *Nidhi A Gupta*	23
8.	Why Do Stillbirths Happen? Looking Beyond the Fetus *Priyanka Gupta, Bhanu Priya*	26
9.	Journal Scan *Bhanu Priya*	30
10.	Stillbirth: Multiple Choice Questions *Bhanu Priya, Priyanshi Gupta*	32

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FROM THE EDITORS' DESK

Greetings from the ISOPARB-Delhi Chapter!

Dear Colleagues,

Warm greetings from the ISOPARB Delhi Chapter!

We are delighted to present the second issue of our quarterly newsletter, dedicated to a theme that is both deeply significant and often insufficiently discussed: **"Stillbirth – From Loss to Learning."**

Stillbirth remains one of the most devastating outcomes in obstetric practice, leaving a profound and lasting impact on families, healthcare professionals and communities. According to estimates by the UN Inter-agency Group for Child Mortality Estimation for 2021, a stillbirth occurred approximately every 16 seconds worldwide, with 84% of these losses occurring in low- and middle-income countries. Despite its magnitude, stillbirth has long remained a neglected tragedy—too often uncounted, rarely discussed and sometimes accepted as inevitable.

This issue brings together a comprehensive range of perspectives to strengthen our understanding of stillbirth and translate knowledge into clinical practice. We begin by exploring the **definition and classification of stillbirth** which is essential for meaningful audits, reliable comparisons across healthcare facilities and the identification of opportunities for prevention.We then turn to **decreased fetal movements**, an important warning sign of possible fetal compromise that warrants prompt assessment and a standardised approach to clinical management. Equally important is the way we communicate when a pregnancy ends in loss. The section on **breaking the news of stillbirth** highlights the importance of empathy, clarity, privacy and respect for parental choices. A thorough understanding of the circumstances surrounding each loss is central to improving future outcomes. The section on **stillbirth workup** as well as **genetic testing** examines the evaluation of maternal and fetal risk factors, placental examination, fetal assessment, autopsy where appropriate and targeted maternal investigations while also exploring the role of targeted genomic investigations in selected cases. However, our responsibility does not end with establishing a diagnosis. **Care after stillbirth and beyond** is an equally vital part of the journey. Bereavement support, psychological care, assessment of recurrence risk and individualised planning for a subsequent pregnancy are essential components of comprehensive care. The **Journal Scan and Quiz** further enrich this issue by bringing current evidence, emerging recommendations and key learning points into focus, encouraging reflection and continued professional development.

Each stillbirth represents not merely a clinical outcome, but the loss of a baby and a future that a family had imagined. By counting every loss, investigating every case systematically, learning from our findings and supporting families with compassion, we can honour the babies we have lost and help protect the pregnancies yet to come. **This is the essence of moving from loss to learning.**

We extend our sincere gratitude to all our contributors for their valuable insights and commitment to advancing maternal and fetal health. We hope this issue will stimulate thoughtful discussion, strengthen clinical practice and inspire renewed efforts towards stillbirth prevention and supportive care for bereaved families.

Happy reading!
With warm regards,
Editorial Team
ISOPARB Delhi Chapter | 2026–2028

Stillbirth Classification Systems: Making Every Case Count

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Introduction

Stillbirth is one of the most neglected tragedies in global health, with an estimated 2 million cases annually, 98% of the total burden occurring in low- and middle-income countries.[1] WHO defines stillbirth for international comparison as fetal death at ≥28 weeks or ≥1000g or ≥35cm length. In 2019, the global incidence of stillbirth was approximately 14 per 1000 total births, while neonatal deaths occurred at a rate of 17 per 1000 live births [2,3]. However, these figures were significantly higher in LMICs, where an estimated 19 stillbirths per 1000 births and 25 neonates per 1000 births were reported. The United Nation's sustainable developmental goals commit to lower the neonatal mortality rate to 12 per 1000 live births by the year 2030 [2,4].

Need of Classifying Fetal Deaths

As perinatal deaths results from a complex interplay of pathophysiological processes between the mother and fetus, with multiple contributing factors, perfectly characterizing and recording these factors remains a significant challenge for determining the causes of the mortality within classification system of perinatal death. A precise standardized framework classifying the causes and associated conditions of the perinatal death is very important for developing the strategies aimed to prevent the future perinatal deaths and reducing the stillbirth rate. The temporal division is critical because intrapartum stillbirth reflects quality of intrapartum care, while antepartum stillbirth reflects poor antenatal care or surveillance.

The optimal classification system would identify the pathophysiologic entity initiating the chain of events which irreversibly led to death. Because the integrity of the classification is based on available pathologic, clinical, and diagnostic data, experts emphasized that a complete stillbirth workup should be performed to develop evidence-based characteristics of maternal, fetal, and placental conditions to attribute a condition as a cause of stillbirth.

Classification Systems

1.WIGGLESWORTH (1980): - This system has a pathophysiological approach for classification; it is simple, reproducible and can be used without autopsy. The drawback of this classification is that it does not take fetal growth restriction into consideration so the large percentage (50-70%) has been classified as unexplained stillbirths, therefore making it difficult to establish plan of care for subsequent pregnancies

2.ReCoDe (2005): – This system seeks to identify the relevant conditions which existed at the time of death-in utero. It has 9 groups of maternal and fetal causes classified from Group A to Group I; unexplained stillbirths reduced to 15% by prioritizing FGR using customised centiles.

PSANZ: Perinatal Society of Australia and New Zealand uses obstetric antecedent (PDC) and neonatal causes (NDC) to group stillbirths; it has 11 groups and ensures comprehensive and consistent data on causes and associated conditions for stillbirths.

TULIP: Tulip (Netherlands) is pathophysiology-based and include 6 categories (Congenital, Placenta, Prematurity, Infection, Other, Unknown) and emphasizes placental pathology. It allows unambiguous classification of underlying cause and mechanism of perinatal mortality, gives a good inter-rater agreement, with a low percentage of unknown causes, and is easily applicable.

CODAC: (2009), aims to associate a main cause of death (COD) with two associated conditions that contributed to that death (AC1 and AC2). For each patient, CODAC uses three codes of three digits each. Each code has three levels: Level I: 10, Level II: 94 and Level III: 577 sub-subgroups.

ICD-PM (2016) - WHO current standard

The International Classification of Diseases for Perinatal Mortality (ICD-PM) was released by the World Health Organization in August 2016 [5] using

the existing ICD-10 as framework that is globally applicable. This system links the cause of perinatal death, using ICD-10. It is a programmatically driven system that focuses attention on the areas where intervention is more likely to change outcomes by focussing on care of both mother and baby around the time of childbirth

In ICD-PM Classification the perinatal deaths are classified using a three-step process:

1. Identification of time of death – antepartum (before the onset of labor), intrapartum (during labor but before delivery) and neonatal (up-to 7 days of postnatal life). While ICD-PM is designed to be used for all antepartum, intrapartum or neonatal deaths, it can also be used for late neonatal deaths (till 28 days), which although falling outside the perinatal period according to ICD – may be a consequence of events in the perinatal period.
2. A multilayered approach to the classification of cause of death, such that it reflects varying levels of available information depending on available resources at facility like routine biochemical tests, histopathology, genetic testing, culture for infectious etiologies and fetal autopsy. By using ICD-PM, mutually exclusive clinical conditions that lead to the identification of a single cause of perinatal death are determined and linked with an ICD code.
3. Links the contributing maternal condition, if any with perinatal death, reflecting that the condition of the mother at the time of death is closely linked with perinatal death, given that a maternal condition is frequently found in the context of perinatal death.

Table 1. ICD-PM categories with description and exemplar-specific causes.

Time of death	Category	Description	Examples
Antepartum death	A1	Congenital malformations and chromosomal abnormalities	Anencephaly encephalocele, microcephaly, congenital hydrocephalus, spina bifida, etc.
	A2	Infection	Congenital syphilis, congenital malaria, congenital rubella syndrome, congenital TB, etc.
	A3	Antepartum hypoxia	Intrauterine hypoxia
	A4	Other specified antepartum disorder	Vasa previa, ruptured cord, twin-twin transfusion, Intraventricular (nontraumatic) haemorrhage, Rhesus and ABO isoimmunization etc.
	A5	Disorders related to fetal growth	Small for gestational age, macrosomia, post-term, etc.
	A6	Antepartum death of unspecified cause	Intrauterine death of unspecified cause
Intrapartum death	11	Congenital malformations and chromosomal abnormalities	Anencephaly, encephalocele, microcephaly, congenital hydrocephalus, spina bifida, etc.
	12	Birth treuma	Intracranial laceration and haemorrhage due to birth injury, Fracture of skull due to birth injury, etc.
	13	Acute intrapartum event	Intrauterine hypoxia
	14	Infection	Congenital syphilis, congenital malaria, congenital rubella syndrome, congenital TB, etc.
	15	Other specified conditions	Vasa previa, ruptured cord, twin-twin transfusion, Intraventricular (nontraumatic) haemorrhage, Rhesus and ABO isoimmuniztion, etc.
	16	Disorders related to fetal growth	Small for gestational age, extreme low birthweight, macrosomia, post-term etc.
	17	Intrapartum death of unspecified cause	Fetal death of unspecified cause
Neonatal death	N1	Congenital malformations, and chromosomal abnormalities	Anencephaly, encephalocele, microcephaly, congenital hydrocephalus, spina bifida, etc.
	N2	Disorders related to fetal growth	Small for gestational age, exceptionally large baby, post-term, etc.
	N3	Birth trauma	Cerebral haemorrhage due to birth injury, intraventricular haemorrhage due to birth injury, etc.
	N4	Complications of intrapartum events	Intrauterine hypoxia, birth asphyxia
	N5	Convulsions and disorders of cerebral status	Neonatal cerebral irritability, neonatal cerebral depression, neonatal coma, etc.
	N6	Infection	Teranus neonatorum, bacterial meningitis, bacterial sepsis, congenital pneumonia, etc.
	N7	Respiratory and cardiovascular disorders	Respiratory distress syndrome, Neonatal aspiration syndromes, neonatal cardiac failure, neonatal cardiac dysrhythmia, neonatal hypertension, etc.
	N8	Other neonatal conditions	Vasa previa, ruptured cord, twin-twin transfusion, Rhesus and ABO isoimmunization, kernicterus, etc.
	N9	Low birthweight and prematurity	Extremely low birth weight, extrame immaturity
	N10	Miscellaneous	Cases where codes from several other sections of ICD-10 should be used
	N11	Neonatal death of unspecified cause	Congenital renal failure, termination of pregnancy, affecting fetus and newborn, withrawal symptoms from drugs, etc.
Meternal conditions	M1	Complications of placenta, cord and membranes	Abruptio placentae, prolapsed cord, chorioamnionitis, etc.
	M2	Meternal complications of pregnancy	Premature rupture of membrances, olige- and polyhydramnios, ectopic pregnancy, multiple pregnancy, etc.
	M3	Other complications of labour and delivery	Breech delivery and extraction, forceps delivery, Caesarean delivery
	M4	Maternal medical conditions	bypertensive disorders, maternal injury, maternal use of tobacco, alcohol or drugs, etc.
	M5	No maternal conditions	No condition identified

https://doi/org/10.1371/journal.pone/0215864.1001

*__Case scenario(Example)__ – Neonatal death after 2 days of delivery of a term, small for gestational age newborn with meconium aspiration syndrome, without any maternal condition will be classified as N7;M5

COMPARISON OF DIFFERENT CLASSIFICATION SYSTEMS[7,8]

SYSTEM	MAIN PURPOSE	KEY COMPONENTS	MAJOR STRENGTHS	LIMITATIONS
Wigglesworth	Broad classification of perinatal deaths	Internationally standardised classification of perinatal deaths using ICD-10.	Simple, easy to apply; useful for basic surveillance and historical comparison.	Broad categories; limited information on placenta, maternal conditions and mechanisms; many deaths may remain unexplained
ReCoDe	Identify Relevant condition at the time of death	Fetus, cord, placenta, amniotic fluid, uterus, mother, intrapartum events and trauma; includes FGR and fetal conditions.	Reduces the 'unexplained' category by identifying relevant conditions present at death.	Primarily developed for stillbirth; does not provide a complete causal pathway or mechanism
PSANZ	Detailed classification of perinatal and neonatal audit	PSANZ-PDC for perinatal deaths and PSANZ-NDC for neonatal deaths; fetal, placental, maternal, congenital, infection and other conditions.	Comprehensive and clinically useful for audit and identifying causes of death.	More complex; requires detailed clinical, investigation and sometimes pathological information.
TULIP	Classify both classification and mechanism of perinatal death	Main causes: congenital anomaly, placenta, prematurity, infection, other and unknown; also identifies mechanisms such as placental, respiratory and cerebral insufficiency.	Comprehensive and clinically useful for audit and identifying causes of death.	More detailed and resource-intensive; multidisciplinary assessment may be required.
ICD-PM	Internationally standardised classification of perinatal deaths using ICD-10.	Antepartum, intrapartum and neonatal causes, with parallel maternal-condition categories (M1–M5).	International standardisation; explicitly links perinatal death with timing and maternal conditions.	ICD coding can be complex and may not fully describe the causal pathway or mechanism.

1. CONCLUSION: Paradigm has shifted from single cause to relevant condition with dual fetal-maternal coding. Classification helps in the understanding of the underlying factors and events leading to perinatal death and is essential for the establishment of priorities of the health service to identify the gaps and highlight the need for strategies for prevention. A universally accepted classification will help countries or districts to benchmark and compare their mortality rates and the associated factors or underlying causes. This in turn will help in aiding appropriate resources to fill health, develop equitable services and respond to local challenges.

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Reduced Fetal Movements: The Red Flag We Cannot Ignore

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Maternal perception of fetal movements is one of the earliest subjective indicators of fetal well-being and neurological integrity. Fetal movements are defined clinically as "any discrete kick, flutter, swish, or roll" (1). Quickening typically occurs between 18–20 weeks in primigravidas and may appear as early as 16 weeks in multiparas (1). By 24 weeks, nearly all pregnant women have established perception of fetal activity. Normal fetal rest activity cycles last 20–40 minutes and rarely exceed 90 minutes, and importantly, *movement frequency does not decline in late gestation* (1).

Reduced Fetal Movement (RFM) refers to maternal perception of a significant decrease or alteration in the baby's usual movement pattern. It is reported in 10–15% of pregnancies in the third trimester (1). Although 70% of women presenting with RFM have uncomplicated outcomes, RFM remains a critical warning sign for fetal compromise and is strongly associated with fetal growth restriction (FGR), placental insufficiency, fetomaternal haemorrhage, congenital anomalies, and stillbirth (1,3). More than half of mothers experiencing stillbirth report preceding RFM (2).

Etiology and Risk Factors

RFM is closely associated with conditions that impair fetal oxygenation or neurological function, including:

- Fetal Growth Restriction / Small-for-Gestational-Age infants
- Placental insufficiency and oligohydramnios
- Fetomaternal hemorrhage
- Congenital anomalies
- Intrauterine infections
- Stillbirth, where RFM is a major preceding symptom.

Maternal and obstetric risk factors include advanced maternal age (≥35 years), high BMI (≥30 kg/m^2), smoking, substance use, psychosocial stress, hypertensive disorders, pre-gestational diabetes, previous FGR or stillbirth, and anterior placenta (1,3).

Clinical Evaluation and Gestational Age–Based Triage

Both RCOG and SFM emphasize rapid, structured assessment (1,3) in case of decreased fetal movement. Formal kick-counting charts such as the Cardiff "count-to-10" are discouraged (RCOG Grade A). The AFFIRM trial demonstrated that rigid kick-counting does not reduce stillbirth and may increase anxiety and unnecessary intervention (4). Instead, maternal awareness of her baby's unique movement pattern is prioritized.

Focused History and Examination

History includes onset, duration, pattern change, previous RFM, bleeding, fluid loss, pain, fever, and risk factors. Examination includes maternal vitals, abdominal palpation, symphysis-fundal height (SFH) plotted on customized charts, and urinalysis (1).

Diagnostic Investigations

A. CTG and Computerized CTG (cCTG)

For women ≥26 weeks, CTG monitoring for 20–30 minutes follows confirmation of fetal viability (1).

- **Computerized CTG (Dawes-Redman criteria)** is preferred. It objectively measures short-term variability (STV).
    - STV <3.5 ms at term or <3.0 ms preterm indicates potential fetal acidemia and requires urgent escalation.
- **Normal CTG** includes baseline 110–160 bpm, variability 5–25 bpm, accelerations present, and no decelerations.

B. Obstetric Ultrasound

Ultrasound is indicated when:

- RFM persists despite normal CTG

- RFM recurs (≥2 episodes)
- Risk factors for FGR/stillbirth exist
- No scan in the past 14 days (1,3)

Essential parameters:

- **Biometry:** EFW and AC to detect SGA/FGR
- **Amniotic fluid:** DVP <2 cm or AFI <5 cm suggests oligohydramnios
- **Doppler velocimetry:**
  - Umbilical artery PI: Elevated PI or absent/reversed end-diastolic flow indicates placental failure
  - MCA Doppler: Low PI suggests brain-sparing
  - CPR <1.0 indicates early compromise even with normal EFW. (1,3)

Management Pathway

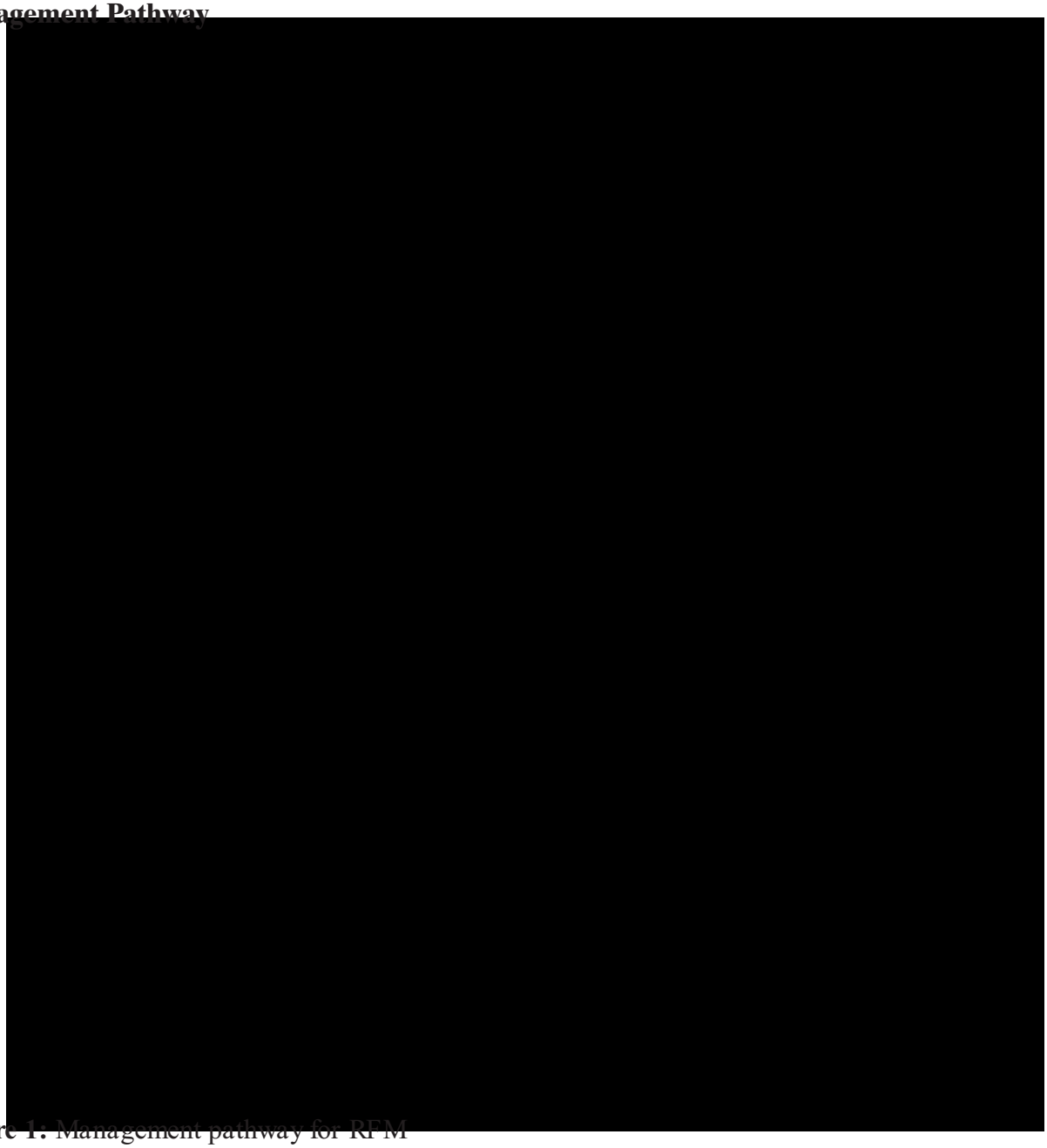


Figure 1: Management pathway for RFM

Table 1: Comparative Overview: RCOG vs SFM Guidelines(1,3)

Domain	RCOG (GTG 57, SBLCBv3)	SFM Guidelines
Movement Assessment	Rejects kick counting; emphasizes maternal perception	Maternal awareness + biophysical algorithms
CTG Modality	Strong preference for cCTG	Visual or computerized CTG depending on resources
Ultrasound & Doppler	Ultrasound for persistent/recurrent RFM; prioritizes UAD and EFW	Early combined Doppler profiling + BPP
Recurrent RFM	Low threshold for senior review and term delivery	Risk-stratified surveillance or inpatient monitoring

Key Clinical Takeaways

- Maternal perception is superior to kick charts; women should monitor their baby's unique movement pattern.
- RFM ≥24–26 weeks requires immediate fetal heart evaluation and CTG.
- Computerized CTG is preferred due to objective STV measurement.
- Recurrent RFM is high-risk and warrants ultrasound surveillance and consideration of term delivery.
- Abnormal CTG or Doppler findings require urgent intervention, including possible early delivery.

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Breaking Bad News: The Medicine of Compassion

Dr. Menka Verma, Associate Professor, Department of Obs & Gynae. Pt. BDS, PGIMS Rohtak

Introduction

Few tasks in medicine or caregiving are as emotionally demanding as delivering bad news. Whether it is a cancer diagnosis, a fatal prognosis or the loss of a pregnancy. How the news is communicated shapes how patients and families cope, trust their caregivers and begin to heal. Research consistently shows that poorly delivered bad news increases psychological distress, damages the doctor patient relationship and can even affect legal and ethical outcomes (1). Due to this, healthcare educators have developed structured communication protocols to guide practitioners through these difficult conversations with empathy, clarity and professionalism. This article outlines the major protocols used for breaking bad news.

Why Protocols Matter

Breaking bad news is not simply about transmitting facts. It involves managing emotional reactions, preserving dignity, providing accurate information and creating a foundation for ongoing care. Protocols exist because clinicians often receive little formal training in this area, poor delivery can cause lasting psychological harm, consistency improves patient satisfaction and structured approaches reduce clinician anxiety and burnout (1,2).

Below are some most commonly used protocols:

1. **The SPIKES Protocol**

Developed by Baile and colleagues for oncology cases, SPIKES remains the most internationally accepted model (2):

- S – Setting: Choose a private, quiet space. Sit down, minimize interruptions and involve support persons if desired.
- P – Perception: Ask what the patient already understands about their condition before sharing new information.
- I – Invitation: Ask how much detail the patient wants to know respecting their preferred level of involvement.
- K – Knowledge: Deliver the information in small, clear chunks, avoiding jargon and giving a warning phrase such as "I'm afraid I have some difficult news."
- E – Emotions: Acknowledge and respond to emotional reactions with empathy rather than rushing past them.
- S – Strategy and Summary: Outline next steps treatment options or support plans and summarize what was discussed.

2. **The BREAKS Protocol**

A simpler, more memorable alternative to SPIKES, developed for use across specialties (3):

- B – Background: Review the patient's history and current understanding beforehand.
- R – Rapport: Build trust through eye contact,tone and body language.
- E – Explore: Ask what the patient already knows.
- A – Announce: Deliver the news gently but clearly.
- K – Kindling: Address emotional responses with warmth and patience.
- S – Summarize: Provide a clear plan and check understanding.

3. **The ABCDE Approach**

Often used in emergency and critical care settings (4):

- A – Advance preparation: Know the facts, plan the setting and mentally prepare.

- B – Build a therapeutic relationship: Establish trust from the outset.
- C – Communicate well: Speak clearly, avoid euphemisms and jargon and pause for questions.
- D – Deal with reactions: Allow silence, validate emotions and avoid minimizing grief.
- E – Encourage/validate emotions: Reassure the patient or family that their reaction is normal and offer ongoing support.

4. **Kaye's Ten-Step Approach** Another model that emphasizes preparation, finding out what the patient knows, giving a "warning shot," sharing information in stages and planning follow-up (5).
5. **The NURSE Model** (For Responding to Emotion)

Frequently used alongside the frame works above to manage emotional responses in the moment (6):

- N – Naming the emotion ("It sounds like this is overwhelming")
- U – Understanding ("This must be very hard to hear")
- R – Respecting the person's coping efforts
- S – Supporting ("We're here for you")
- E – Exploring further feelings or concerns.

Common Threads Across Protocols: Despite different acronyms, all frameworks share common principles: thorough preparation before the conversation; privacy and adequate time; clear language rather than euphemism; empathetic acknowledgement of emotion, including silence; and a concrete follow-up plan so the person is not left without information.

Applying this in practice: Breaking the News of Stillbirth

Bringing together the general protocols, several practical points stand out:

1. Timing and setting-Deliver the news in a private room, ideally by a senior clinician known to the parents, away from the labor ward if it is safe to move them and with both parents or support people present (7,8).
2. Clear, compassionate language-Parents consistently report wanting direct but gentle language — for example, "I'm so sorry, there is no heartbeat" — rather than ambiguous phrasing that delays understanding or creates false hope (9,10).
3. Establish what parents already sense-Many women present already worried about reduced fetal movements or other concerns; exploring their perception first, as SPIKES and the RCOG guideline both recommend, allows the news to be delivered in a way that meets them where they are (7,9).
4. Allow silence and immediate emotional reactions-Shock, disbelief and numbness are normal; clinicians should resist the urge to fill silence with more information than parents can absorb in the moment (2,9).
5. Offer informed choices-Parents should be given clear, supported choices about mode of birth, seeing and holding the baby, creating mementos and involving family or spiritual support, consistent with RCOG's emphasis on shared, individualized decision-making (7,8).
6. Avoid minimizing language-Phrases such as "you can try again" are experienced as dismissive and should be avoided; grief should never be rushed (9,10).
7. Multidisciplinary and continuity-based support-A named professional and, where available, a specialist bereavement team should coordinate care from diagnosis through discharge and beyond (8).
8. Follow-up-Parents need written information, results of investigations explained sensitively, and continued emotional support, including referral to bereavement counselling if present.

BREAKING BAD NEWS

Practical flow chart for communicating stillbirth news

1. Prepare yourself and the setting
↓
2. Discuss what the parents understand
↓
3. Give a warning statement
↓
4. Pause and allow silence
↓
5. Acknowledge the baby and the parents
↓
6. Respond to emotions
↓
7. Explain only the immediate next steps
↓
8. Offer choices and control
↓
9. Discuss seeing and holding the baby sensitively
↓
10. Offer memory making / talking
↓
11. Explain investigations carefully
↓
12. Provide written information
↓
13. Arrange continuity of care
↓
14. Close the conversation carefully

Conclusion

Breaking bad news is both a science and an art. Structured frameworks such as SPIKES, BREAKS, ABCDE, and Kaye's steps give clinicians a reliable general approach, while the NURSE model helps manage the emotional aftermath. For stillbirth specifically, utilize these general principles into obstetric practice: sensitive, individualized communication; continuity of care; a protected environment; clear written information; and informed, supported choice at every stage. No protocol removes the pain of loss, but a compassionate, well-structured approach can prevent additional harm and help families begin to grieve with dignity.

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ISOPARB-DELHI CHAPTER: REPORT OF MONTHLY CME

The Delhi Chapter of ISOPARB organized a CME in collaboration with Trained Nurses Association of India (TNAI), on **"Recent Updates in Labor Management"** on 22nd August 2026 at **Headquarters**, **Trained Nurses Association of India, Green Park, Delhi.** The event began with a welcome address by the President ISOPARB- Delhi Chapter Dr Sumita Mehta and President TNAI, Ms. Dolma. This CME marked the milestone event for the society with the **release of the first issue of its quarterly newsletter "Small Virus- Big Impact"**. The newsletter focused on viral infections and their management in pregnancy.







The CME sessions covered important labor topics – Diagnosing Labor Arrest. The topic on Innovations in labor management and use of artificial intelligence generated interest for the delegates. The panel on special situations in labor with active involvement of nursing officers also was well appreciated. Overall, the CME laid down an important foundation between doctors and nursing officers for management during labor.

On **28th September 2026, ISOPARB in association with DGF Central Delhi** held a **CME** on **Respectful Maternity Care at the Institute of Obstetrics and Gynecology, Sir Ganga Ram Hospital, Delhi.**

The CME included case presentation on Maternal SLE& Fetal Heart Block. This was followed by a drill on management of maternal collapse. Didactic lectures were taken on genetic evaluation of fetal tachycardia and bradycardia and Threatened abortion. This was followed by a panel discusion on Near Miss mortality. Our learned faculty contributed by sharing their knowledge and experiences in not only saving a life but a home by preventing maternal mortality.



Stillbirth Workup: What Should we Investigate?

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According to the **Sample Registration System (SRS) Statistical Report 2020**, India's stillbirth rate is estimated at **3 per 1,000 births** (1). India aims to sustain a **single-digit stillbirth rate (SBR) and neonatal mortality rate (NMR) by 2030**, highlighting the need to identify preventable causes and strengthen maternal and perinatal care (2).

Identifying the precise cause of stillbirth, however, remains challenging. Several classification systems—including **ReCoDe, INCODE and TULIP**—have been developed and are used internationally (3-5). Differences among these systems can lead to variation in how causes are assigned, limiting meaningful comparisons across healthcare settings and making it difficult to translate mortality data into targeted preventive strategies. To address this lack of uniformity, the **World Health Organization (WHO)** introduced the **ICD-PM (International classification of disease _ Perinatal Mortality) classification**, based on the International Classification of Diseases, for standardized reporting of perinatal mortality (6,7). ICD-PM classifies deaths according to their timing—**antepartum, intrapartum or neonatal**—and links the fetal cause of death with associated maternal conditions. The details of this classification can be found in the article titled "Stillbirth Classification Systems" in this newsletter.

Clinical Considerations and Management

Eessential components of a stillbirth evaluation:

Evaluation of a stillbirth should include fetal autopsy; gross and histologic examination of the placenta, umbilical cord, and membranes; and genetic evaluation (8). An algorithm for evaluation is provided in Table 2. Specific aspects of the evaluation are outlined in Figure 1.

1. *Examination of placenta*

   Gross and histopathological (HPE) examination of the placenta, umbilical cord, and fetal membranes by a trained pathologist is the single most useful aspect of the evaluation of stillbirth and is an essential component of the evaluation (8).

2. *Examination of Fetus*

   When a full autopsy is performed, it should follow published guidelines and protocols for perinatal autopsy (9).

3. *Fetal laboratory studies*

   Karyotype or microarray are of higher yield if the fetus displays dysmorphic features, inconsistent growth measurements, anomalies, hydrops, or growth restriction. Single nucleotide probe arrays can also detect uniparental disomy and consanguinity. Fetal karyotype is important if a parent carries a balanced chromosomal rearrangement (e.g, translocation or inversion) or has a mosaic karyotype.

4. *Maternal evaluation*

   A thorough maternal history to look for known conditions or symptoms suggestive of those that have been associated with stillbirth (Table 3).

5. *Maternal investigations*

   - Fetal-maternal hemorrhage screen: Kleihauer-Betke test or flow cytometry for fetal cells in maternal circulation
   - Syphilis
   - Lupus anticoagulant Anticardiolipin antibodies
   - β2 glycoprotein antibodies
   - Glucose screening (oral glucose tolerance test, hemoglobin A1C).

Table 1: Fetal and Placental Evaluation

Inspect fetus and placenta

- Weight, height circumference, and length of fetus
- Weight of placenta
- Photographs of fetus and placenta
- Frontal and profile photographs of whole body, face, extremities, palms and any abnormalities
- Document findings and abnormalities

Obtain consent from parents for cytologic specimens:

- Obtain cytologic specimens with sterile techniques and instruments
- Acceptable cytologic specimens (at least one)
  - amniotic fluid obtained by amniocentesis at time of prenatal diagnosis of demise; particularly valuable in case delivery is not imminent
  - placental block (1x1 cm) taken from below the cord insertion site on unfixed placenta
  - umbilical cord segment (1.5cm)
  - Internal fetal tissue specimen, such as costochondral junction or patella; skin is not recommended.
- Place specimens in sterile tissue culture media of lactated Ringer solution and keep at room temperature when transported to cytology laboratory

▼

Obtain Parental consent for Fetal autopsy

▼ ▼

Fetal autopsy and placental pathology may include fetal whole body X-ray)	If no consent for autopsy, send placenta alone for HPE. External fetal evaluation by trained perinatal pathologist.**

**ACOG/SMFM. Obstetric Care Consensus #10: Management of Stillbirth. Am J Obstet Gynecol 2020.*

Figure 1: Evaluation of still birth based on test utility in variety of clinical scenarios

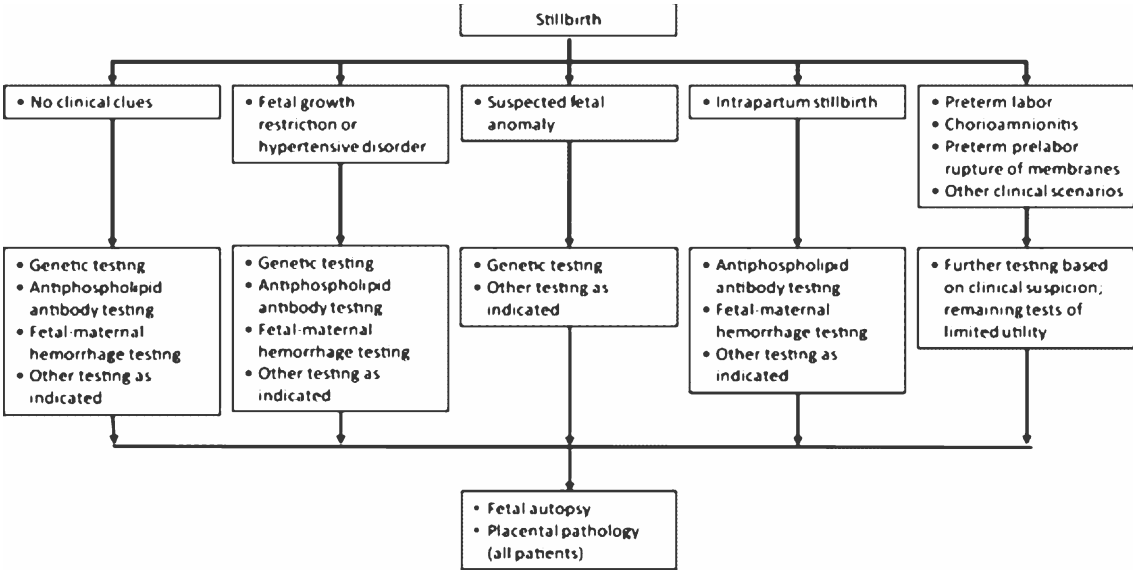
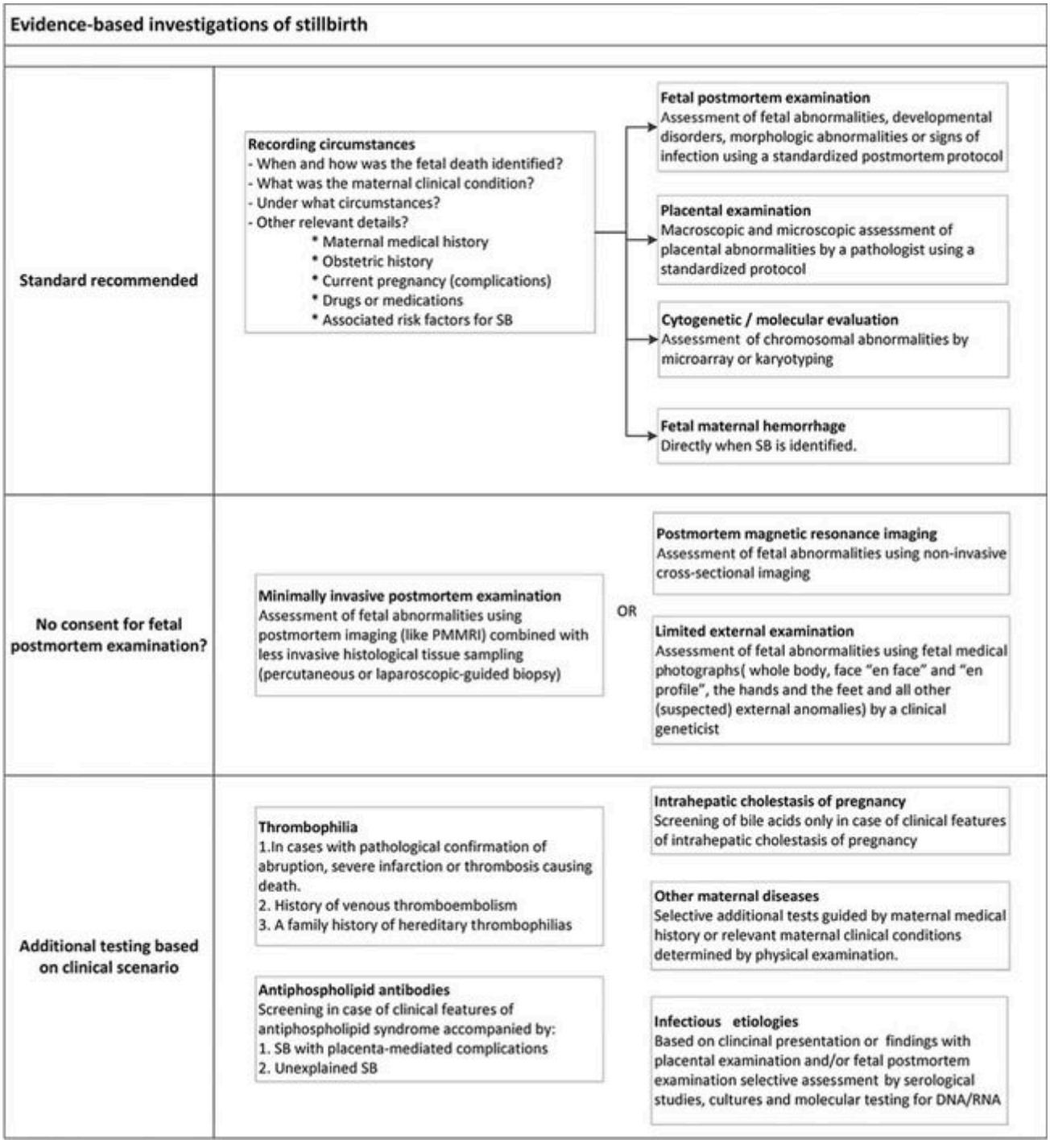


Table 2: Important Components of Maternal Evaluation in a Case of Stillbirth

Family history	Maternal history	Obstetrical history	Current pregnancy
- Recurrent spontaneous abortions - Venous thromboembolism - Congenital anomaly/ chromosomal abnormalities - Hereditary condition/ syndrome - Developmental delay - Consanguinity	- Previous venous thromboembolism - Diabetes mellitus - Chronic hypertension - Thrombophilia - SLE - Autoimmune disease - Epilepsy - Severe anaemia - Heart disease - Tobacco, alcohol, drug, or medication use	- Recurrent miscarriages - Previous child with anomaly, hereditary condition/ growth restriction - Previous gestational hypertension/ preeclampsia - Previous gestational diabetes mellitus - Previous placental abruption - Previous fetal demise	- Maternal age - Gestational age at stillbirth - Medical conditions complicating pregnancy - Pregnancy weight gain and body mass index - Complications of multifetal gestation, TTS, TRAP, and discordant growth - Placental abruption - Abdominal trauma - Preterm labor or rupture of membranes - Gestational age at onset of prenatal care - Abnormalities seen on an ultrasound image - Infections/chorioamnionitis


Evidence-based investigations of stillbirth
Standard recommended
Recording circumstances
- When and how was the fetal death identified?
- What was the maternal clinical condition?
- Under what circumstances?
- Other relevant details?
* Maternal medical history
* Obstetric history
* Current pregnancy (complications)
* Drugs or medications
* Associated risk factors for SB
Fetal postmortem examination
Assessment of fetal abnormalities, developmental disorders, morphologic abnormalities or signs of infection using a standardized postmortem protocol
Placental examination
Macroscopic and microscopic assessment of placental abnormalities by a pathologist using a standardized protocol
Cytogenetic / molecular evaluation
Assessment of chromosomal abnormalities by microarray or karyotyping
Fetal maternal hemorrhage
Directly when SB is identified.
No consent for fetal postmortem examination?
Minimally invasive postmortem examination
Assessment of fetal abnormalities using postmortem imaging (like PMMRI) combined with less invasive histological tissue sampling (percutaneous or laparoscopic-guided biopsy)
OR
Postmortem magnetic resonance imaging
Assessment of fetal abnormalities using non-invasive cross-sectional imaging
Limited external examination
Assessment of fetal abnormalities using fetal medical photographs(whole body, face "en face" and "en profile", the hands and the feet and all other (suspected) external anomalies) by a clinical geneticist
Additional testing based on clinical scenario
Thrombophilia
1.In cases with pathological confirmation of abruption, severe infarction or thrombosis causing death.
2. History of venous thromboembolism
3. A family history of hereditary thrombophilias
Antiphospholipid antibodies
Screening in case of clinical features of antiphospholipid syndrome accompanied by:
1. SB with placenta-mediated complications
2. Unexplained SB
Intrahepatic cholestasis of pregnancy
Screening of bile acids only in case of clinical features of intrahepatic cholestasis of pregnancy
Other maternal diseases
Selective additional tests guided by maternal medical history or relevant maternal clinical conditions determined by physical examination.
Infectious etiologies
Based on clincinal presentation or findings with placental examination and/or fetal postmortem examination selective assessment by serological studies, cultures and molecular testing for DNA/RNA

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Genetic Testing After Stillbirth: Who,When And Why?

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Introduction

The definition of stillbirth varies globally. According to the World Health Organization (WHO), stillbirth refers to the delivery of a fetus with no signs of life at or after 28 weeks of gestation. Stillbirth may result from maternal, fetal, placental, or environmental factors. An **unexplained stillbirth** is one in which no definitive cause is identified after evaluation for common etiologies, including obstetric complications, infection, placental or umbilical cord abnormalities, and congenital anomalies. Despite extensive investigation, a significant proportion of stillbirths remain unexplained.

Genetic factors contribute to a substantial proportion of perinatal deaths, with the spectrum varying according to gestational age and the underlying abnormality. Approximately 25% of stillbirths may have a genetic etiology [1]. However, genetic evaluation remains underutilized, and access to testing varies considerably depending upon available expertise, laboratory facilities, type of testing, and cost.

Genetic abnormalities associated with stillbirth include:

- **Chromosomal abnormalities:** Aneuploidies such as trisomy 21, trisomy 18, monosomy X.
- **Copy-number variants:** Deletions and duplications associated with structural anomalies, fetal growth restriction (FGR), placental abnormalities.
- **Single-gene disorders:** Cardiomyopathies, arrhythmias, hemoglobinopathies, metabolic disorders, skeletal dysplasias.
- **Methylation abnormalities:** Imprinting disorders. Methylation may present with placental abnormalities, polyhydramnios, or abnormal fetal growth [2]

Who should be tested?

When prenatal invasive testing has not been performed, genetic testing should be offered in all cases of stillbirth. A comprehensive assessment for stillbirth includes parental counseling, placental examination and pathology, gross examination or fetal autopsy when appropriate, genetic testing, and other laboratory investigations [3].

In selected peripartum stillbirths with clear maternal or obstetric explanation, like preterm labour, or chorioamnionitis, genetic testing may be deferred following appropriate counseling.

Table 1. Indications for Genetic Evaluation

1. Recurrent pregnancy loss or previous unexplained stillbirth
2. Congenital malformations, including congenital heart disease, ventriculomegaly, abdominal wall, genitourinary anomalies
3. FGR with or without utero-placental insufficiency
4. Maternal hypertension, early-onset pre-eclampsia, acute fatty liver of pregnancy
5. Advanced parental age
6. Unexplained abnormalities of amniotic fluid volume
7. Pregnancy conceived using assisted reproductive technology
8. No identifiable cause after initial evaluation

When and How Should Testing Be Performed?

Genetic evaluation following stillbirth can be challenging because of the need for timely consent, appropriate specimen collection, selection of the most suitable test, and financial considerations.

Pretest counseling is essential. Parents are often experiencing profound grief and may find it difficult to understand the potential value of numerous laboratory tests. Counseling should therefore address the purpose, limitations, possible results, and implications for future pregnancies in a sensitive and understandable manner.

Once fetal demise is confirmed, a detailed maternal and pregnancy history should be obtained, including

review of prenatal screening. Fetal ultrasonography and postmortem examination may identify congenital anomalies, growth abnormalities, or features suggestive of a genetic syndrome and testing can be tailored.

If delivery is not imminent, **amniocentesis can be considered before delivery after parental consent**. If prenatal testing is not performed, appropriate fetal, placental, or cord specimens should be collected after delivery.

Examination by a clinical geneticist or appropriately trained clinician may identify dysmorphic features or other abnormalities suggestive of a genetic disorder. Anthropometric measurements are particularly useful when skeletal dysplasia is suspected on fetal ultrasound.

The choice of test should be guided by the clinical phenotype, family and maternal history, consanguinity, prenatal screening results, postmortem findings, suspected diagnosis, laboratory expertise, availability, and cost.

Table 2KaryotypeChromosomal abnormalities are reported in approximately 6–13% of stillbirths [4]. Requires viable cells and has limited resolution, can detect abnormalities larger than 5–10 Mb. Culture failure is common, particularly with macerated fetuses.MicroarrayDetects aneuploidies and submicroscopic deletions or duplications. It has substantially higher resolution than karyotyping and does not require viable cells. It is currently the preferred test to detect cytogenetic abnormalities [5].Exome/Genome sequencingUseful when a single-gene disorder is suspected, including cardiomyopathy, arrhythmia, metabolic disease, or skeletal dysplasia. It can be used as a second tier if the cause is unexplained after cytogenetic testing. Trio testing using parental and fetal samples facilitates variant interpretation and prevents variants of uncertain significanceMethylation analysisConsidered when there is clinical suspicion of an imprinting or methylation disorder or following negative exome/genome sequencing.

Specimen Collection

Appropriate specimen collection is critical for successful testing. **Specimen Collection/ considerations Amniotic fluid** Can be obtained by amniocentesis before delivery when appropriate; provides a good source of fetal cells. **Placental tissue** Approximately 1 × 1 cm, preferably collected from area below the cord insertion; particularly useful when the fetus is macerated. **Umbilical cord** Approximately 1.5 cm may be collected for genetic testing. **Fetal tissue**Fetal tissue like costochondral junction, patella, muscle, or fascia measuring 1 × 1 × 1 cm may be collected. may be used depending on laboratory requirements. Fetal skin should not be collected for DNA analysis. **Cord blood** Collected at delivery when feasible; utility depends on the timing and circumstances of fetal demise.Specimens should be collected fresh and placed in sterile saline, Ringer's lactate, Hanks' balanced salt solution, or the special medium recommended by the laboratory. **Alcohol and formalin should not be used for samples intended for DNA-based testing.** Samples should be transported promptly or stored according to laboratory recommendations. Communication with the laboratory before collection is advisable because requirements vary according to the test.

Why Is Genetic Testing Important?

Genetic testing is an important component of stillbirth evaluation because it can identify an underlying cause that may otherwise remain undiagnosed. Establishing a diagnosis can help parents understand the cause of their loss and reduce uncertainty or feelings of self-blame.

Importantly, it provides information about **recurrence risk** and enables individualized counseling and management in subsequent pregnancies. Depending on the diagnosis, future pregnancies may benefit from targeted screening, diagnostic testing, or enhanced fetal surveillance. Some findings may also have implications for parents or other family members.

Thus, genetic testing should not be viewed solely as an investigation to explain a previous loss. It is an important component of comprehensive stillbirth evaluation, providing diagnostic information that can support parental counseling, recurrence-risk assessment, and reproductive planning.

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Why Do Stillbirths Happen? Looking Beyond the Fetus

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One stillbirth occurs approximately every 16 seconds worldwide, accounting for nearly two million deaths annually. Tragically, many of these deaths may be preventable through timely, evidence-based care during pregnancy and childbirth (1). The consequences of stillbirth extend far beyond mortality statistics. The loss of a baby can have profound and lasting psychological, emotional, social, and financial consequences for women and their families. For many parents, the experience is accompanied by grief, unanswered questions, and a persistent search for explanations. So the question that thousands of females with a stillborn infant ask themselves is why do stillbirth happen?

Stillbirth is defined as baby born after the period of viability having no signs of life after delivery(2) though there is no uniformity among states regarding birthweight and gestational age criteria for reporting fetal deaths. As per SFM & ACOG 2020 guidelines, stillbirth is defined as 'fetal death at 20 weeks or greater gestation (if period of gestation is known); if period of gestation is not known then, weight of fetus should be more than 350gm(which is equal to 50th percentile for the weight at 20 weeks of gestation). However, in the UK, stillbirth is legally defined as 'a baby delivered with no signs of life, known to have died after 24 +0 completed weeks of pregnancy'(3).

Risk Factors

The national perinatal mortality surveillance system (MBRRACE-UK) reviewed a representative UK sample of unexpected stillbirth at term in whom the postmortem did not identify a cause and it concluded with the following risk factors. (Table 1)

TABLE 1: Risk factors for late IUFD (3,4)

Non-modifiable

- Nulliparity
- Maternal age > 35 years
- Maternal age <20 years
- Black, Asian & other non-white women
- Previous stillbirth
- Previous adverse pregnancy outcomes (preterm birth, pre-eclampsia, fetal growth restriction)
- Multiple pregnancy
- Advanced gestational age >41+0 weeks
- FGR and/or SGA
- Low educational attainment
- Reduced fetal movements
- Thyroid disease
- Thrombophilia
- Malaria infection
- COVID -19 infection
- Cholestasis
- Systemic lupus erythematous(SLE) /antiphospholipid syndrome (APS)
- Renal disease

Potentially modifiable

- Pre-existing hypertension
- Obesity/overweight/weight gain
- Smoking > 10 cigarettes/day
- Alcohol use
- Illicit drug use
- Going to sleep supine
- Living in areas of most deprivation

Causes of stillbirth

Researchers continue to study the many factors that may contribute to causes, including access to quality health care, pre-existing health conditions, and other factors that can affect pregnancy. Learning more about these factors helps improve our understanding of stillbirth and identify opportunities to create programs to prevent them (5). Modern Medicine divides its answer based on different evidence into – Maternal, fetal, placental, intrapartum and unexplained causes.

Maternal factors

- High blood pressure disorders: Conditions like preeclampsia or chronic hypertension
- Diabetes: Pre-existing or poorly managed gestational diabetes
- Other medical issues: Lupus, thyroid disease, blood clotting disorders, or liver conditions such as intrahepatic cholestasis of pregnancy
- Lifestyle and risk factors: Smoking, heavy alcohol or substance use, extreme maternal age (< 15 or >35 years), and severe obesity.
- Chronic conditions: Renal disease, autoimmune disease (e.g., SLE, antiphospholipid syndrome)
- Obstetric history: Prior stillbirth, recurrent pregnancy loss
- Demographics/behaviour: Black race, nulliparity, ART conception, multiple gestation

Infections

- Maternal or fetal infections: Bacterial or viral illnesses can cross the placenta or ascend from the birth canal.
- Specific pathogens: Group B streptococcus, *E. coli*, *listeria*, syphilis, cytomegalovirus (CMV), rubella, and malaria.

Placental/cord causes

- Placental abruption: The placenta separates from the wall of the uterus too early, cutting off oxygen and nutrients.
- Placental insufficiency: The placenta fails to provide enough blood or nutrients, leading to FGR.
- Umbilical cord issues (velamentous cord insertion, true knots, cord compression, chorioamnionitis): The cord can become pinched, tangled, wrapped around the baby, or suffer a true knot, restricting blood and oxygen.
- Maternal vascular malperfusion: Infarcts, accelerated villous maturation, distal villous hypoplasia – strongly linked to preeclampsia, FGR, and stillbirth.
- Fetal vascular malperfusion: Thrombosis in foetal vessels, avascular villi.

Foetal causes

- Congenital anomalies, both structural and chromosomal
- Genetic conditions: Aneuploidy, microdeletions/duplications; monogenic disorders. Errors in genetic instructions that affect organ growth and development.
- Fetal growth restriction (FGR), hydrops, severe anaemia (e.g., alloimmunization, parvovirus).

Intrapartum stillbirth

- Related to intrapartum hypoxia, uterine rupture, cord prolapse, severe abruption, inadequate monitoring in high-risk labours.

Table 2: Estimated rate of stillbirth with maternal or fetal conditions* (7)

Prevention of Stillbirths

All stillbirths can never be prevented but the risk can be significantly reduced by taking following precautions:

Preconception Interventions:

- Medical History & Risk Assessment: Conduct a thorough review of past medical, surgical, and obstetric records—including a careful investigation into the causes of any previous stillbirths or fetal losses.
- Chronic Disease Optimization: Stabilize pre-existing conditions such as chronic hypertension, diabetes mellitus, thyroid disorders, and epilepsy through specialist referrals and switching to pregnancy-safe medications
- Targeted Aspirin Therapy: Initiate low-dose aspirin (75–150 mg) preconceptionally or early on for women with known APLA
- Lifestyle & Weight Optimization: Advise on smoking cessation, limiting alcohol/substance use, correcting anemia, and working toward a healthy body mass index through balanced nutrition and exercise.

*Adapted from ACOG & SFM 2020 guidelines

- Medication Review: Identify and discontinue known teratogenic drugs (such as ACE inhibitors) and replace them with safer clinical alternatives.
- Genetic & Carrier Screening: Offer genetic counseling and carrier screening if inherited conditions, chromosomal abnormalities, or recurrent losses are suspected.
- Immunizations & Infections: Ensure vaccinations are up to date (including rubella, varicella, hepatitis B, and COVID-19) and screen/treat chronic infections like syphilis and HIV.
- Folic Acid Supplementation: Start daily folic acid supplementation before conception to prevent neural tube defects and support early embryonic development.

Lifestyle modification

- Maintain a healthy weight: Aim to achieve a healthy body weight before and during your pregnancy.
- Sleep in lateral position: From 28 weeks of gestation, women should be advised to go to sleep on either side, both at night and during daytime naps. Going to sleep on the back may be associated with an increased risk of stillbirth, possibly due to compression of major blood vessels and reduced blood flow to the uterus and placenta.
- Avoid smoking, alcohol, and recreational drugs: Smoking cessation and avoidance of alcohol and recreational drugs are important to reduce the risk of adverse pregnancy outcomes and support healthy fetal development.
- Ensure adequate folic acid supplementation: Folic acid should be taken before conception and continued through the first 12 weeks of pregnancy to reduce the risk of neural tube defects.

Medical Care and Monitoring

- Attend regular antenatal appointments: Consistent antenatal care enables healthcare professionals to monitor maternal health and fetal growth through clinical assessments, fundal height measurement, and ultrasound examinations when indicated.
- Monitor baby's movements: Women should become familiar with their baby's usual movement patterns and seek prompt medical assessment if movements decrease, change significantly, or stop. Reduced fetal movements should never be ignored or assessed solely by waiting until the next day.
- Optimise management of medical conditions: Pre-existing and pregnancy-related conditions, including chronic hypertension, pre-eclampsia, diabetes mellitus, and other relevant medical disorders, should be identified early and appropriately managed throughout pregnancy.
- Reduce the risk of infections: Good hand hygiene, safe food handling and thorough cooking, recommended vaccinations, and avoidance of exposure to infectious illnesses can help reduce the risk of infections that may adversely affect pregnancy.

Identify The Warning Signs

Pregnant women should be advised to contact their maternity unit or seek urgent medical assessment if they experience:

- Reduced, absent or clearly changed fetal movements.
- Vaginal bleeding.
- Severe or persistent abdominal pain.
- Severe headache, visual disturbance or other symptoms suggestive of pre-eclampsia.
- New or unexplained itching, particularly involving the palms or soles.
- Symptoms suggestive of significant infection or maternal deterioration.

These symptoms do not necessarily indicate fetal compromise, but they require timely assessment to exclude potentially serious complications.

Counselling and Care in Subsequent Pregnancies

Following stillbirth, parents require sensitive counselling and emotional support. Preconception

or early-pregnancy consultations should review the previous loss, investigation results and modifiable risk factors to develop an individualised care plan. Depending on the circumstances, specialist care, fetal growth assessment, additional surveillance and planned timing of delivery may be considered. Bereavement and psychological support should be available, with opportunities to discuss concerns and outstanding results.

Conclusion

Stillbirth remains a major global health challenge with diverse and often multifactorial causes. Prevention requires coordinated care from preconception and antenatal management to timely intrapartum intervention. Systematic investigation, accurate documentation, compassionate counselling and multidisciplinary review can help identify preventable risks and improve future pregnancy outcomes. Every family deserves sensitive support, and every loss should provide an opportunity to learn and improve care.

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Maternal circulating sFlt-1/placental growth factor is a biomarker of fetal death associated with placental lesions of maternal vascular malperfusion.

Chaiworapongsa T, Romero R, McClure EM, Goudar S, Somannavar M, Tikmani SS et al. J Perinat Med. 2026 Jan 7;54(3):550-565.

Objectives

Fetal death remains a major global obstetric problem, with a particularly high burden in South Asia. Maternal vascular malperfusion (MVM) is among the most common placental lesions associated with fetal death. This study evaluated whether maternal serum concentrations of soluble fms-like tyrosine kinase-1 (sFlt-1), placental growth factor (PlGF), and the sFlt-1/PlGF ratio differ according to the presence of placental MVM lesions in pregnancies complicated by stillbirth or preterm neonatal death.

Methods

This retrospective cohort study included participants from the PURPOSe study (Project to Understand and Research Preterm Pregnancy Outcomes and Stillbirths in South Asia). Women with fetal death or preterm birth followed by neonatal death within 28 days were included if placental histology and maternal serum concentrations of both PlGF and sFlt-1 were available. Placental lesions were classified according to the Amsterdam criteria. Biomarkers were measured using Elecsys® immunoassays. Analyses were performed across three gestational-age groups: 20–27+6, 28–36+6 and ≥37 weeks.

Results

Biomarker measurements were available in 79% (645/814) of stillbirths and 75% (464/618) of preterm neonatal deaths with available placental histology. Among stillbirths, MVM lesions were present in 44%, 57% and 57% across the three gestational-age groups, respectively. In preterm neonatal deaths, MVM was identified in 31% and 38% of the relevant gestational-age groups.

Between 28 and 36+6 weeks, women with stillbirth and MVM had significantly lower PlGF and higher sFlt-1 and sFlt-1/PlGF ratios than those without MVM. A 10-fold decrease in PlGF was associated with MVM (OR 0.54; 95% CI 0.4–0.7; p<0.001), while a 10-fold increase in the sFlt-1/PlGF ratio was also associated with MVM (OR 1.7; 95% CI 1.4–2.1; p<0.001). An sFlt-1/PlGF ratio >38 identified 74% of stillbirths associated with MVM and 61% without MVM. Similar findings were observed among preterm neonatal deaths, with an sFlt-1/PlGF ratio >38 identifying 77% of cases with MVM and 55% without MVM.

Editor's Comment

The study highlights the association between angiogenic imbalance and placental MVM, particularly at 28–36 weeks. sFlt-1/PlGF may have potential as a biomarker of placental dysfunction and fetal death; however, its limited specificity and the observational design mean that prospective studies are needed before routine use for stillbirth prediction.

Machine learning analysis of pregnancy-related factors and stillbirth: a retrospective cohort study of 65,000 pregnant women in Shuyang, Suqian, Jiangsu, China, 2019-2024

Zhu Y, Geng T, Dan W, Ding K, Tang X, Sun L et al. BMC Pregnancy Childbirth. 2026 Jan 9;26(1):131.

Background & Objective

Stillbirth remains a major global health challenge, particularly in developing regions. Although China has a stillbirth rate below the global average, persistent disparities indicate scope for further reduction. This study used machine learning (ML) to identify pregnancy-related factors associated with stillbirth and develop a model to support risk stratification and future targeted prevention strategies.

Materials & Methods

This retrospective cohort study analysed electronic medical records of 65,884 pregnant women who delivered in Shuyang. Three ML models were initially trained to identify important predictors of stillbirth. Synthetic Minority Over-sampling Technique (SMOTE) was applied to address class imbalance. Seven ML models were subsequently retrained using the identified predictors. Model performance was assessed using area under the curve (AUC) in test and validation datasets. The random forest model was further optimized using grid search with fivefold cross-validation, followed by refinement of the classification threshold.

Results

Seven key predictors of stillbirth were identified: fetal growth restriction (FGR), poor pregnancy history, birth defects, hyperglycemia in pregnancy, gestational age, folic acid supplementation, and number of prenatal examinations. The random forest model showed the best predictive performance, with an AUC of 0.807 in the test set and 0.749 in the validation set. The model demonstrated a low missed-diagnosis rate of 0.3% and false-positive rate of 0.1%. After hyperparameter optimization, the model achieved a livebirth recall of 99.7% ± 0.1%, with an optimal decision threshold of 0.217 to balance sensitivity and specificity.

Editor's Comment

This study highlights the potential of machine learning to integrate multiple pregnancy-related factors for stillbirth risk stratification. FGR, adverse pregnancy history, congenital anomalies and hyperglycemia emerged as important predictors. However, the modest validation AUC and retrospective, local dataset highlight the need for external validation before clinical implementation.

Stillbirth: Multiple Choice Questions

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Q1. The Every Newborn Action Plan (ENAP) set a target for stillbirth rate to be reduced to which of the following in every country by 2030?

A. 5 or fewer per 1000 total births

B. 8 or fewer per 1000 total births

C. 12 or fewer per 1000 total births

D. 20 or fewer per 1000 total births.

Q2. A 32-year-old G2P1 at 36 weeks reports reduced fetal movements for 2 days. She is normotensive and the CTG is reactive. What is the most appropriate next step?

A. Reassure and continue routine antenatal care

B. Same-day ultrasound for fetal biometry and liquor volume, with or without umbilical artery Doppler

C. Immediate induction of labour

D. Advise fetal kick counting at home.

Q3. The AFFIRM stepped-wedge trial of a care package for reduced fetal movements showed that:

A. Stillbirth was halved

B. Neonatal mortality fell significantly

C. Both stillbirth and neonatal mortality fell

D. Stillbirth did not fall, while rates of induction and caesarean birth rose.

Q4. Parents decline a full autopsy after stillbirth. What is the most appropriate approach?

A. Record the cause as unexplained and stop investigating

B. Offer external examination, imaging, and placental histopathology

C. Insist on full autopsy as it is mandatory

D. Rely on maternal blood tests alone.

Q5. In a macerated baby, the ideal sample for genetic analysis is obtained from:

A. Clotted fetal blood

B. Placental tissue

C. Fibroblast from skin

D. Fibroblast from Achilles tendon.

Q6. A fetus dies antepartum in a pregnancy complicated by severe maternal hypertension. The fetal evaluation suggests a growth-related disorder. Under the ICD-PM framework, what is the key principle when documenting the death?

A. Record only the maternal diagnosis

B. Record only the fetal diagnosis

C. Link the fetal cause category with the relevant maternal condition category

D. Use the maternal condition category as a substitute for fetal evaluation.

Q7. A woman with a previous stillbirth undergoes evaluation after the fetus is found to have multiple anomalies. The couple is subsequently found to have a history suggestive of consanguinity. Which test characteristic is particularly relevant when selecting a genetic investigation?

A. Ability to detect only whole-chromosome aneuploidy

B. Ability of single-nucleotide polymorphism (SNP) arrays to detect uniparental disomy

C. Ability of conventional karyotyping to detect all single-gene disorders

D. Ability of placental histology to establish a fetal chromosomal diagnosis.

Q8. A woman has a stillbirth with no clear explanation after initial clinical assessment. The team is considering a maternal laboratory work-up. Which option most closely reflects the specific tests?

A. Routine TORCH panel, serum calcium, vitamin D and lipid profile

B. Fetomaternal haemorrhage testing, syphilis testing, antiphospholipid antibodies and glucose assessment

C. Universal inherited thrombophilia panel and broad autoimmune screening in every case

D. Maternal tumour markers and serum cortisol.

Q9. A clinician collects an appropriate fetal tissue specimen for cytogenetic testing after obtaining parental consent. What should be the handling approach ?

A. Place the specimen in formalin and refrigerate

B. Send only a swab from the fetal skin

C. Place the specimen in saline mixed with fixative and freeze immediately

D. Place the specimen in sterile tissue-culture medium, such as lactated Ringer solution, and transport at room temperature.

Q10.A stillbirth is diagnosed at 24 weeks, but delivery is not expected immediately. The parents consent to genetic testing. Which specimen is specifically identified in the article as particularly valuable in this situation?

A. Maternal peripheral blood

B. Fetal skin collected after maceration

C. Amniotic fluid obtained by amniocentesis at the time of diagnosis

D. Formalin-fixed placental tissue.

1C, 2B, 3D, 4B, 5D, 6C, 7B, 8B, 9D, 10C

1C, 2B,3D, 4B, 5D, 6C, 7B, 8B, 9D, 10C

WHY ME

I keep thinking about it everyday
What was it that left me bare,
Why did I not get to hold
That tiny creature who grew in me as my soul,

You started your journey with me
You needed help to grow, and I agreed,
You promised to satisfy my soul
I emptied all my stores to make you secure
but then suddenly you changed your plans
Moved to some distant land
Where I could not reach out,
To ask you reasons for this fallout

You were a part of me
I sensed you even before, no one could see,
Every heartbeat of yours, I synchronized with mine
Every moment of yours, I felt divine
I spoke to you about all my fears
With you I laughed, I smiled, I broke into tears
As if I was you and you were me
I began to see you hugging me

And then, you left without a word,
Leaving me shocked and stirred
No closure, No settlement,
Only questions and interrogations
I wish I had got a chance to appeal……..
WHY ME

Anshul Rohatgi

MEMBERSHIP APPLICATION FORM

Membership No.:_____ (office use only) **Date:** _____

1. TYPE OF MEMBERSHIP

☐ Annual Membership ☐ Life Membership

2 . PERSONAL DETAILS

Full Name (Dr.)	
Date of Birth	
Gender	
Qualification(s)	
Year of Passing MBBS	
Designation / Instituttion	
Area of Specialization	
Delhi Medical Council Registration Number	

2 . PERSONAL DETAILS

Mailing Address	
City / State	
PIN Code	
Mobile Number	
Email Address	

4. PAYMENT DETAILS

Amount Elclosed: `_____ ☐ Cheque ☐ Demand Draft

☐ NEET / Online Transfer

Cheque / DD / UTR No.	
Bank & Branch (Applicant's)	
Date of NEET / RTGS	

Note: *Cheques / DDs to be drawn in fevour of "ISOPRB Delhi Chapter" payable at New Delhi*

Bank	Canara Bank	**A/c No.**
IFSC Code	CNRB0001911	

Kindly share the UTR / transaction reference number along with this from after making the transfer.

5. DECLARATION

I hereby apply for membership of ISOPARB (Delhi Chapter) and agree to abide by the Constitution, Rules and Regulations of the Society as may be in force from time to time. The Information given above is true to the best of my knowledge.

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