



FOGSI - ICOG

Good Clinical Practice Recommendations GCPR

Multifetal Pregnancy Management



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Young Talent Promotion Committee

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Fogsi Good Clinical Practice Recommendations

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Disclaimer: These recommendations for “Multifetal Pregnancy Management” have been developed, to be of assistance to obstetricians, consulting physicians, and general practitioners, by providing guidance and recommendations for managing women and families, who experience a multifetal pregnancy. The recommendations included here should not be viewed as being exclusive of other concepts or as covering all legitimate strategies. The suggestions made here are not meant to dictate how a particular patient should be treated because they neither set a standard of care nor do they guarantee a particular result. To diagnose patients, choose dosages, and provide the best care possible while also taking the necessary safety precautions, clinicians must rely on their own experience and knowledge. The writers or contributors disclaim all responsibility for any harm and/or damage to people or property resulting from the use or operation of any techniques, goods, guidelines, or ideas presented in this content.

BACKGROUND

The management of multifetal pregnancies represents a distinctive and complex facet of modern obstetrics. With the increasing occurrence of multiple pregnancies due to factors such as assisted reproductive technologies (ART) and delayed childbearing, healthcare providers are faced with unique challenges and opportunities in ensuring the health and well-being of both expectant mothers and their unborn children. These multifetal pregnancies, which encompass twins, triplets, and higher-order pregnancies, demand a level of care that transcends routine obstetric practices. Multifetal pregnancies are not merely an increment of complexity in obstetric care but are, in essence, a unique and intricate journey. They require a nuanced approach that balances the anticipation of multiple joys with the recognition of heightened maternal and fetal risks. This document seeks to address this duality by providing a roadmap that integrates the latest medical advancements with a compassionate and patient-centered ethos.

Throughout these recommendations, we will explore various facets of multifetal pregnancy management, from prenatal care and diagnostic techniques to labor and delivery strategies and postpartum considerations. We will delve into the nuances of monitoring maternal and fetal well-being, discuss the intricacies of counseling and shared decision-making, and highlight the importance of a multidisciplinary approach to care.

As we embark on this journey, it is imperative to remember that the ultimate goal is to optimize outcomes for both the expectant mother and her multiple fetuses. By following these recommendations, we aim to enhance the quality of care provided to multifetal pregnancies, reduce the risks associated with such pregnancies, and foster a sense of confidence and trust among healthcare providers and patients alike.

In a rapidly evolving field, the management of multifetal pregnancies requires a commitment to continuous learning and adaptation. These recommendations, therefore, represent not a static endpoint, but a dynamic framework, subject to updates as new evidence emerges and technologies advance.

Purpose and Scope: The primary objective of this GCPR is to provide consensus statement and to guide professionals, postgraduates, midwives, pediatricians about clinical practice and recommendations for antenatal care, intrapartum care, and the psychosocial considerations necessary in the care of pregnant women with multifetal pregnancy.

METHODOLOGY

The Federation of Obstetric and Gynaecological Societies of India (FOGSI) has issued these good clinical practice recommendations (GCPR) after following the process outlined in the Royal College of Obstetricians and Gynaecologists (RCOG) “Guideline for Guideline Development - 2020”. A task force was formed, when the topic was chosen and authorized. The core group was determined, and time lines were negotiated and conveyed. The scope of the guideline was written, the objectives were defined, and the stakeholders were identified and included in the scope. To establish the greatest possible evidence foundation for the GCPR, a comprehensive evaluation of the literature was done. The core committee analyzed existing guidelines, meta-analyses, systematic reviews, and major publications on blood transfusion, and suggestions tailored to the Indian context were developed. The task group members, who include famous obstetricians and specialists of renown, reviewed the existing evidence in the area to make these recommendations. The guideline was peer reviewed numerous times by professionals, and comments were included. There was no conflict of interest and everyone was in good standing for professional personal or nonpersonal interests, financial or nonfinancial. The committee assessed recommendations and evidence using the US Preventive Services Task Force (USPSTF) approach, based on the level of evidence and size of net benefit (benefits minus harms).

GRADES & LEVELS OF EVIDENCE

Grading	Recommendation	
A	Strongly recommended	At least one randomized controlled trial (RCT) as a part of a body of literature of overall good quality and consistency that addresses the specific recommendation
B	Suggested	Availability of well-controlled clinical studies, but no RCTs are available on the topics of recommendation
C	Unresolved	Evidence obtained from the expert committee reports of opinions and/or clinical experiences of respected authorities, which indicates an absence of directly applicable clinical studies of good quality
CPP	Clinical practice points	Evidence not sought. A practice point has been made by the guideline development group, where important issues arose from the discussion of evidence or clinical consensus recommendations

LEVELS OF EVIDENCE

Level	Type of evidence
I	High-quality prospective cohort study with adequate power or systematic review of these studies
II	Lesser quality prospective cohort, retrospective cohort study, untreated controls from an RCT, or a systematic review of these studies
III	Case-control study or systematic review of these studies
IV	Case series
VI	Expert opinion; case report or clinical example; or evidence based on physiology; bench research, or "first principles"

1. ANTENATAL MANAGEMENT

A. General Care

1. Counseling and emotional support

- 1.1 To reduce anxiety, the goal and potential results of all screening and diagnostic tests should be described sensitively to women with multifetal pregnancy.¹ (GPP)
- 1.2 The couple and family members engaged in her care should be counseled and informed that she requires special care owing to her multifetal pregnancy. (GPP)
- 1.3 As twin moms have a greater risk of postpartum depression, additional monitoring for mental health issues is advised.^{2,3} (GPP)

2. Weight gain in multifetal pregnancy

- 2.1 Monitoring the weight gain is recommended, and is applicable to all women with multifetal gestation.⁴ (Grade A)
- 2.2 Gestational weight gain depends on her pre-pregnancy status. And pre-pregnancy body mass index (BMI). (Grade A)

3. Diet, lifestyle and nutritional supplements³

- 3.1 Diet, lifestyle and nutritional supplements same as in routine singleton antenatal care except calcium, a twin pregnancy requires additional amounts of calcium in the diet and the total calcium intake should amount to 2000-2500 mg per day.⁶
- 3.2 Increased risk of anemia in a multifetal pregnancy.
- 3.3 Perform a full blood count @ first visit, 20-24 weeks, 28-32 weeks and at 34-36 weeks to identify women with multifetal pregnancy, who needs extra supplementation with iron and folic acid (FA).

B. USG Recommendation⁷

1. Dating of the pregnancy (determining gestational age) and location of pregnancy.

- 1.1 Twin pregnancies should ideally be dated when the crown-rump length (CRL) measurement is between 45 and 84 mm (i.e. 11+0 to 13+6 weeks of gestation.)
 - In pregnancies conceived spontaneously, the larger of the two CRLs should be used to estimate gestational age.

2. Determining chorionicity and amnionity

- 2.1 Chorionicity should be determined before 13+6 weeks of gestation at the site of insertion of the amniotic membrane into the placenta, identifying the T sign, Lamda sign, and the number of placental masses. At the time at which chorionicity is determined, amnionity should also be determined and documented.

2.2 MCMA (Monochorionic Monoamniotic) twin pregnancies should be referred to a tertiary center with expertise in their management [Good practice point (GPP)].

3. Twin labeling

3.1 The labelling of twin fetuses should follow a reliable and consistent strategy and should be documented clearly in the woman's notes (GPP)

4. Timing frequency and content of ultrasound assessment.

4.1 MCMA See **Figure 1**

4.2 DCDA See **Figure 2**

5. Screening for aneuploidy

5.1 Screening for trisomy 21 can be performed in the first trimester using the combined test [nuchal translucency thickness (NT), free beta-human chorionic gonadotropin (Beta-hCG) level and pregnancy-associated plasma protein-A (PAPP-A) level].

5.1 In case of a vanished twin, even if there is still a measurable fetal pole or fetal demise of one of the twins, we should rely on USG only not on biochemical serum markers.

6. More sensitive and specific screening tests

6.1 Fetal cell-free DNA is tested in maternal blood noninvasive prenatal testing (NIPT)/maternal blood for fetal DNA (MBFD) sensitivity is 99.8%. It is almost similar as in singleton pregnancy.

6.2 Fetal fraction should be >4 % otherwise test is not valid and called "No call".

6.3 Wide genome NIPT is also available, should be recommended judiciously.

7. Invasive diagnosis

7.1 Chorionic villus sampling (CVS) and amniocentesis are invasive tests. CVS till 11 weeks and amniocentesis after 15.6 weeks.

7.2 CVS is preferred in twin pregnancy over amniocentesis for diagnosis of aneuploidy.

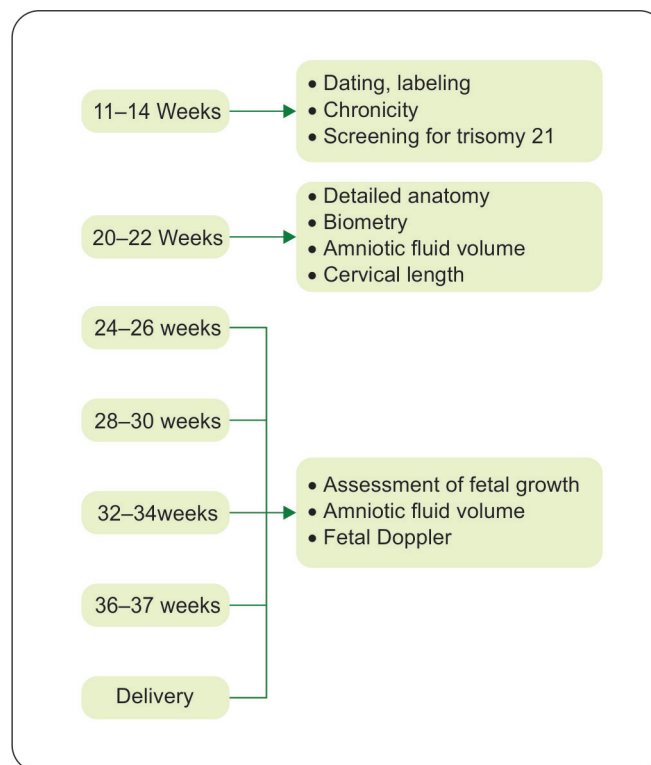


Fig. 1: Ultrasound monitoring pathway in uncomplicated dichorionic twin pregnancy⁵

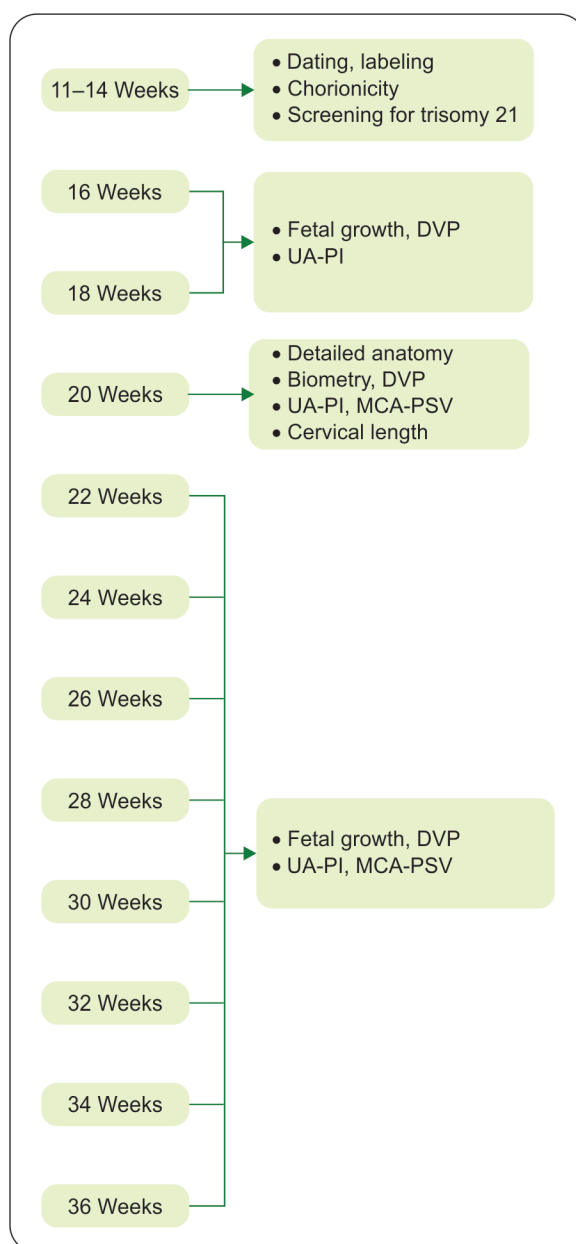


Fig. 2: Ultrasound monitoring pathways in uncomplicated monochorionic twins pregnancy⁵

Abbreviations: DVP: Deepest vertical pocket; MCA: Middle cerebral artery; PI: Pulsatility index; PSV: Peak systolic velocity; UA: Umbilical artery

8. Screening for structural abnormalities

8.1 Twin fetuses should be assessed for the presence of any major anomalies at the first-trimester scan The NT scan.

7.2 Followed by a routine second-trimester scan, which should be performed at around 20-22 weeks of gestation (GPP).

7.3 An early anomaly scan is indicated if any doubtful finding/soft markers/intermediate risk on first-trimester screening. Performing early Anomaly scan if there is a poor visualization due to maternal habitus or obesity.

9. Cardiac screening

9.1 Basic cardiac screen is must at level 2 scan.

9.2 Extended cardiac screening as per the International Society of Ultrasound in Obstetrics and Gynecology (ISUOG) guidelines should be done (GPP).

9.3 Detailed cardiac assessment should be performed in all monochorionic twins (GPP).

10. Diagnosis and management of discordant twin pregnancy.

10.1 Twin pregnancies discordant for fetal anomaly should be referred to a regional fetal medicine center (GPP).

10.2 Fetal reduction/selective termination in dichorionic twin pregnancy can be done. Selective feticide is performed by ultrasound-guided intracardiac or intrafunicular injection of potassium chloride or lignocaine, preferably in the first trimester after NT and dual marker first-trimester screening (FTS).

10.3 When the diagnosis is made in the second trimester, women might opt for late selective termination in the third trimester, if the law permits (GPP).

10.4 Selective feticide in monochorionic twins is performed by cord occlusion, intrafetal laser ablation, radiofrequency ablation (RFA).

11. Screening for preterm birth.

11.1 Cervical length measurement is the preferred method of screening for preterm birth in twins; 25 mm is the cut-off most commonly used in the second trimester.

11.2 Cervical length should be measured by transvaginal sonography (TVS) only.

12. Screening, diagnosis, and management of fetal growth restriction (FGR)

12.1 Diagnostic criteria and investigations for selective FGR (sFGR)

12.2 sFGR, conventionally, is defined as a condition in which one fetus has an estimated fetal weight (EFW) <10th centile and the intertwin EFW discordance is > 25% (GPP).

13. Management of multiple pregnancy complicated by single intrauterine death (IUD)

13.1 When single IUD occurs in a twin pregnancy, the woman should be referred to a tertiary-level centre with relevant expertise (GPP).

13.2 Following single IUD, the following complications are found in monochorionic and dichorionic pregnancies, respectively (**Figs. 1 and 2**):

- Death of the co-twin: 15% and 3%
- Preterm delivery: 68% and 54%
- Abnormal postnatal cranial imaging of the surviving co-twin: 34% and 16%
- Neurodevelopmental impairment of the surviving co-twin: 26% and 2%.

C. Antenatal Care³

1. A multidisciplinary team should be made for the antenatal care of women with multifetal pregnancy.

1.1 A core team of specialized obstetricians with specialist midwives and sonographers should be there who all are experienced and knowledgeable in managing multifetal pregnancy.

1.2 A dietician.

1.3 An enhanced team for referrals, which should have a perinatal mental health professional, a women's health physiotherapist, and an infant-feeding specialist.

2. Diagnostic monitoring for complications of mono-chorionicity, such as fetal fetal transfusion syndrome (FFTS), Fetal growth restriction (FGR), twin anemia polycythemia sequence (TAPS), should be done.

3. Do not refer each and every female to the multidisciplinary team, but base the decision to refer on each pregnant female's requirement.

- Special conditions in which referral to tertiary care center is recommended:
 - Pregnancies with shared amnion such as monochorionic monoamniotic twins, dichorionic diamniotic twins, monochorionic diamniotic triplets, and monochorionic monoamniotic triplets
 - Pregnancies complicated by any of the following:
 - ♦ Fetal growth discordance (of 25% or more) and an EFW of any of the babies below the 10th centile for gestational age
 - ♦ Fetal anomaly (structural or chromosomal)

- ♦ Discordant foetal death
- ♦ Feto-fetal transfusion syndrome (FFTS)
- ♦ Twin reverse arterial perfusion sequence (TRAP)
- ♦ Conjoint twins or triplets
- ♦ Suspected TAPS

4. *Coordinate clinical care for women with multifetal pregnancy to minimize the number of hospital visits, provide care as close to woman's home as possible, provide the continuity of care within and between hospitals and the community.*

5. *The core team should offer information and emotional support specific to multifetal pregnancies at their first visit with the woman and provide ongoing opportunities for further discussion and advise including:*

5.1 Antenatal nutrition

5.2 The risks, symptoms and signs of preterm labor and the potential need for corticosteroids for fetal lung maturation:

- Do not offer intramuscular progesterone to prevent spontaneous preterm birth in women with multifetal pregnancy.
- Do not offer the following interventions like bedrest, cervical cerclage, oral tocolytics, and arabin pessary routinely to prevent spontaneous preterm birth.
- Inform women with multifetal pregnancy of their increased risk of preterm birth and about the benefits of targeted corticosteroids.

5.3 Antenatal and postnatal mental health and wellbeing.

5.4 Maternal complications:

- Hypertension
 - Advise women with multifetal pregnancy to take 75-150 mg aspirin daily from 12 weeks until the birth of the babies if they have high Gestosis score
 - Offer placental growth factor (PIGF) based testing to help rule out pre-eclampsia between 20 weeks and 36 weeks 06 days of pregnancy, if women with chronic hypertension are suspected of developing pre-eclampsia or in women with positive family history.

5.5 Likely timing of birth and possible modes of the birth.

5.6 Breastfeeding.

5.7 Parenting.

2. DELIVERY SETTING AND ENVIRONMENT FOR PLANNED TWIN DELIVERY

Background

Prerequisite

The most relevant prerequisite of twin delivery is a multidisciplinary team including experienced obstetricians with acumen towards identifying and ability to handle complications if arises and competent neonatologist to reduce perinatal morbidity of twin neonates.

1. Planning a Multifetal Delivery: Guidelines

1.1 Adequate information and mental, emotional support to the expectant mother with detailed information to the family members about the chances of having preterm birth, and preparedness for delivery in case the need arises right after 28 weeks of gestation.

1.2 Taking into account the plans and wishes of the expectant mother and understanding her preferences.

1.3 Place of birth to be clearly mentioned and need for tertiary level care center in case the need arises for neonatal intensive care or massive blood transfusion and all pros and cons be discussed in detail.

1.4 Preparedness for delivery in case of preterm labor or after maturity of the fetus depending upon the obstetric condition of the mother and the options of the modes of delivery should be discussed in detail.

1.5 Labor analgesia or regional anesthesia to be discussed in detail prior to the onset of labor during antenatal counseling sessions.

2. Timing the Planned Birth: Guidelines

2.1 Explain based on clinical evidences that about 60 in 100 women result into spontanous labor before 37 weeks of gestation, so keeping oneself at guard is the best possible way to be prerpred [Grade B].

2.2 Detailed information about the need of neonatal unit admissions in case preterm birth occurs or in case planned preterm delivery has to be done due to maternal/foetal complications [Grade B].

2.3.a Uncomplicated dichorionic diamniotic twins planned delivery after 37 completed weeks is recommended to avoid untoward neonatal complications-offer planned birth [Grade B].

2.3.b Continuing uncomplicated dichorionic diamniotic twins beyond 37 plus 6 weeks of gestation may increase the chance of fetal compromise [Grade B].

2.4.a Uncomplicated monochorionic diamniotic twin planned delivery beyond 36 completed weeks of gestation is recommended to avoid untoward neonatal complications-offer planned birth [Grade A].

2.4.b Continuing uncomplicated monochorionic diamniotic twin beyond 36 plus 6 weeks of gestation may increase chance of fetal compromise [Grade A].

2.5.a Uncomplicated monochorionic monoamniotic twin planned delivery between 32 and 33 completed weeks of gestation to avoid serious neonatal adverse outcomes, however, they may need NICU admission for RDS-offer planned birth [Grade A].

2.5.b Continuing uncomplicated monochorionic monoamniotic twin beyond 33 plus 6 weeks of gestation may lead to fetal compromise [Grade A].

3. Intrapartum Settings

3.1.a Facility for continuous cardiotocography for women in established labor.

3.1.b Facility for portable ultrasound scan to assure twin presentations and location.

3.2.a Dual channel cardiotocography availability to simultaneously monitor both fetal hearts.

3.2.b Proper documentation of records pertaining to traces of each baby.

3.2.c Electronic monitoring of maternal pulse with a lucid display unit.

3.3.a Provision of apt staff and OT/labor complex team for prompt response in case atonic occurs or intrapartum or postpartum eclampsia occurs in the case of hypertensive mothers.

3.3.b Blood and blood products readily available near the place of delivery.

DISCUSSION

Every twin gestation is unique and comes with its set of antenatal and intrapartum postpartum events. The crux behind safe mother and safe neonate is strict vigilance that starts right from the antenatal period and continues through the optimization of the delivery settings aiming towards an uneventful postpartum period.

3. CHOOSING THE ROUTE OF DELIVERY (Flowchart 1)

A. Delivery setting and environment for planned twin delivery

A1. The presence of an experienced obstetrician familiar with internal or external version of the second twin is recommended **(GRADE B)**

A2. Access to an anesthetist is preferred in case an emergency cesarean section becomes necessary **(GRADE B)**

A3. Access to a neonatology unit is recommended for assisting with the transition of each infant, including resuscitation if needed, and the facility should be able to provide the risk-appropriate level of care for the newborn **(GRADE B)**

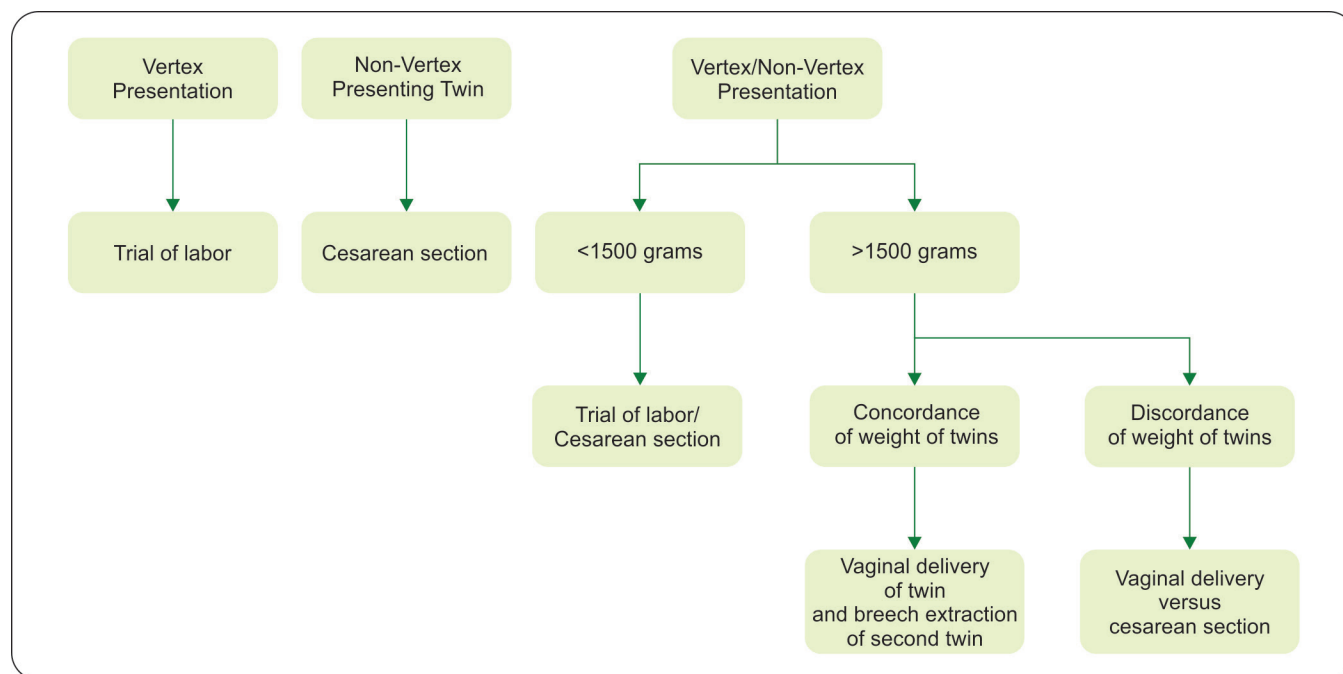
B. Choosing the Route of Delivery

B1. Both amnionity and fetal presentation at the onset of labor affect the choice of delivery route in twin pregnancies.

B2. Vaginal birth is preferred for diamniotic twins in which the presenting twin is cephalic at the onset of labor, if appropriate expertise in internal and external version and/or vaginal breech delivery is available and there are no standard indications for cesarean birth **(GRADE C)**.

B3. Presentation at the onset of labor⁹

Cephalic: 80%	Noncephalic: 20%
Cephalic/cephalic: 42%	Noncephalic/cephalic: 7%
Cephalic/noncephalic: 38%	Non cephalic/Noncephalic: 13%

Flowchart 1: Showing the route of delivery of twin deliveries

The presentation of the second twin can change intrapartum. According to a study, 30% of the second twins, who were noncephalic on admission, were cephalic at delivery and 11% of the second twins cephalic on admission were noncephalic at delivery.¹⁰

C. Diamniotic Twins with Cephalic-Presenting Twin

C1. We recommend the trial of labor for diamniotic twins with the first twin in cephalic presentation **(GRADE B)**.

C2. Cesarean birth is preferred for diamniotic twins with a noncephalic-presenting twin, monoamniotic twin, and other obstetric indications for cesarean section **(GRADE C)**.

C3. Planned cesarean birth does not significantly improve neonatal or early childhood outcome as compared with planned vaginal birth for diamniotic twins with the first twin as cephalic as shown in The Twin Birth Study.¹¹

D. Approach to Cephalic-Noncephalic Presentation

D1. A trial of normal labor is recommended with the option of the breech extraction of the second twin after the informed consent of the patient **(GRADE B)**.

D2. If the patient is not willing for breech extraction or of it is contraindicated, offer the intrapartum external cephalic version of the second twin or planned cesarean section for both twins.

D3. Planned elective cesarean section is recommended in the following conditions of cephalic/noncephalic twins as depicted in the [Table 1](#) **(GRADE C)**.

- Gestational age <28 weeks.
- Estimated fetal weight of the second twin <1500 gm.

D4. Few contraindications of the breech extraction of the second twin need to be discussed, where intrapartum external cephalic version or planned cesarean section for both the twins can be offered **(GRADE D)**.

- Estimated fetal weight of the second twin 20% more than that of the presenting twin.
- Cephalopelvic disproportion suggested by the prolonged second stage of labor or marked molding of the head of the first twin suggests the inadequacy of pelvis for a breech delivery.

Table 1 Weight gain recommendations for women pregnant with twins as per CDC guidelines⁵

<i>Pre-pregnancy BMI</i>	<i>Recommended weight gain for twins</i>
Underweight (BMI < 18.5)	12-18 kg
Normal weight (BMI 18.5-24.9)	11-13 kg
Overweight (BMI 25-29.9)	7-11 kg
Obese (BMI > 30)	5-9 kg

E. Diamniotic Twin with Noncephalic-Presenting Twin

E1. Approximately 20% of twins have non-cephalic presentation, where a cesarean birth is recommended. A unique complication in non-cephalic presenting twin with the cephalic second twin is interlocking chins (locking twins) (**GRADE B**).¹²

F. Trial of Labor After Previous Cesarean Birth

F1. Facilities with continuous fetal heart monitoring and round-the-clock emergency cesarean section services are available and can offer trial of labor to patients with diamniotic twin pregnancies with a cephalic-presenting twin and one prior cesarean birth, provided they go into spontaneous labor (**GRADE B**).

- Twins undergoing the trial of labor after cesarean delivery (TOLAC) had similar rates of successful vaginal birth and uterine rupture as singletons undergoing TOLAC (**GRADE B**).
- Although twins undergoing TOLAC had higher rates of uterine rupture than twins undergoing a planned repeat cesarean, the rates of uterine scar dehiscence, hemorrhage, blood transfusion, and neonatal morbidity and mortality were similar.

F2. Two prior cesareans: We suggest repeat cesarean for these patients.

G. Monochorionic/Monoamniotic Twins

G1. Monoamniotic/monochorionic twins are delivered by cesarean section to avoid complications during labor from cord entanglement (**GRADE C**).

4. MANAGEMENT OF LABOR

Line of Management and General Consideration of Labor in Multifetal Gestation (ACOG)

First stage of labor:

- Reviewing any antenatal complications, assessing maternal and fetal well-being, and determining the presentation of the twin especially the first twin.
- A multidisciplinary approach with involvement of midwife, obstetrician, anesthetist, and neonatologist is recommended alongside necessary equipments (**GRADE A**).
- Continuous fetal heart rate monitoring is recommended (**GRADE A**).
- Oxytocin can be used for augmentation as per singleton guidelines. Intravenous (IV) access in the form of large bore cannula is recommended in view of the increased risk of postpartum hemorrhage (**see for reference induction of labor**).
- It is recommended to inform the neonatology team in the early stages of twin labor (**GRADE A**).
- A proper counseling during the first stage is again done for the probability of the babies requiring intensive care.
- A back up operation theater (OT) has to be prepared in case alongside strict drug check list of oxytocic for the management of the third stage of labor (**GRADE A**).
- When vaginal birth is the option of choice, continuous monitoring of both babies is recommended as well as attendance by expert personnel confident in the delivery of twins.

Second stage of labor

- Both babies should be actively monitored.
- Vaginal delivery of twins involves three stages: delivery of first twin, interdelivery time interval, and delivery of second twin.
- Ensure adequate fetal monitoring of twins.
- Delivery of twin A: Early cord clamping to be done in monochorionic monoamniotic. For the interdelivery interval: External cephalic version or internal podalic version if the second twin is breech or transverse.
- Delivery of the twin B poses the higher risk (fetal distress, malposition, cord prolapse) and delivering the second twin by cesarean section occurs in about 5% of the cases.

Third stage of labor

Postpartum hemorrhage is more common in twins irrespective of the mode of delivery – intravenous access, active management of third stage, and prompt access to uterotonics and blood products should be available.

Cause of PPH in multifetal pregnancy

Uterine atony	<ul style="list-style-type: none"> • Hyperextension of uterus • Fatigue of myometrium: long usage of tocolytic agent including of magnesium sulfate to management preeclampsia • Placenta located in the lower uterine segment: huge size of placenta
Delay of myometrium suture	Delayed placenta delivery
High-risk of complications	High-risk of disorder of blood coagulation: GT, PIATD, HELLP syndrome, acute fatty liver

Abbreviations: GT: Gestational thrombocytopenia; HELLP: Hemolysis, elevated liver enzymes, low platelet count; PIATD: Pregnancy-induced antithrombin deficiency; PPH: Postpartum hemorrhage

RECOMMENDATION

- Women with monochorionic twins should have the timing of birth discussed and be offered elective delivery from 36+0 weeks with the administration of antenatal steroids, unless there is an indication to deliver earlier (**GRADE C**).
- It is appropriate to aim for the vaginal birth of monochorionic diamniotic (MCDA) twins unless there are other specific clinical indications for cesarean section (**GRADE A**).
- MCMA twins almost always have umbilical cord entanglement when visualized using color flow Doppler. Such a finding has not consistently been demonstrated to contribute to overall morbidity and mortality (**GRADE D**).
- MCMA twins have a high risk of fetal death and should be delivered by caesarean section between 32+0 and 34+0 weeks (**GRADE D**).

5. MODE FOR CESAREAN SECTION

There are certain situations where delivery by cesarean section is advised. In MCMA twins, for example, delivery by cesarean section between 32 weeks and 33⁺⁶ weeks of gestation is recommended due to the high risk of cord entanglement and resultant stillbirth.

Indications for delivery by cesarean section

- Monochorionic monoamniotic twins at 36 week under corticosteroid cover. Although, it is appropriate to aim for vaginal birth of MCDA twins unless there are other specific clinical indications for caesarean section (RCOG).
- Triplets and higher number multiples
- Conjoined twins
- Presenting twin not in cephalic presentation
- Twins complicated by TTTS/TAPS/FGR
- Presence of other cesarean section indications for singleton pregnancies (**see for ref DELIVERY**)

- Reference:

- Lemmon B, Pereira S, Glob. libr. women's med., ISSN: 1756-2228; DOI 10.3843/GLOWM.414003
- ACOG
- RCOG

Third stage of labor: to be monitored and managed actively as the rate of PPH is as high as 24% (REFER TO FOGSI GCPR on Medical Management of PPH).

- Twin deliveries are at higher risk of placental insufficiency, intrauterine growth restriction (IUGR), and prematurity. Two separate teams including personnel trained in neonatal resuscitation should be available at the time of delivery. The delivery room should have two separate set of resuscitation equipment for both the babies. The resuscitation protocol after birth is similar to any singleton delivery. (Grade A) (THIRD STAGE OF LABOR).
- In twins delivered from dichorionic pregnancy, it is suggested delaying cord clamping for at least 60 seconds. If the newborn is not breathing and is in need for immediate resuscitation, the immediate cord clamping should be done (Grade A).
- Delayed cord clamping (DCC) is not recommended in monochorionic twins because of the risk of intertwin transfusion at birth (Grade B).

6. NEONATAL MANAGEMENT

Practice Recommendations

1. Neonatal intensive care unit (NICU) should be available as a back-up in case the babies require support after birth. This is especially important in the cases of prematurity, intra-uterine growth restriction (IUGR) on antenatal ultrasound (Grade A).
2. Monochorionic twins, especially those with discordant birth weights, should be evaluated for twin-twin transfusion syndrome, including a determination of hematocrit (Grade A).
3. Adequate counselling and support should be provided to mothers to ensure successful breastfeeding (Grade A).

DISCUSSION (APPENDIX)

The neonatal management of twins or multiple births should include preparation for complications that can occur more frequently in multiple births, including IUGR, prematurity, congenital anomalies, discordant growth, and twin-twin transfusion. Prior to delivery, the obstetrical team should provide information about additional high-risk factors so that the neonatologist can anticipate the needs of the babies in the delivery room, and whether the baby will require NICU support. In addition, the neonatologist should be informed about the gestation of pregnancy, the estimated fetal weights, any evidence of IUGR, chorionicity of the placenta, any discordance (especially in monochorionic pregnancies), any evidence of congenital anomalies, and fetal demise. DCC is not recommended in monochorionic twins because of the risk of intertwin transfusion at birth. There is a paucity of data on safety and the usefulness of DCC in this subset of population. In the delivery room, adequate number of healthcare providers, who are trained in neonatal resuscitation, should be available. After birth, babies should be thoroughly examined for congenital malformations. The management of twins, who are low birth weight (LBW) or are born prematurely, should proceed as for singleton LBW/preterm births. This includes maintaining body temperature and providing additional respiratory support for each infant as needed in the delivery room. These babies should be evaluated for anticipated complications such as hypothermia, hypoglycemia, and polycythemia.

In the case of monochorionic twins, especially those with discordant growth, one should check hematocrit to rule out twin-to-twin transfusion. Discordant growth is defined as the difference in weight between the largest and smallest infants calculated as a percentage of the birth weight of the larger infant. Using this definition, difference of >15% is considered discordant growth. In twin-to-twin transfusion, the recipient twin, the larger fetus in the amniotic sac, typically has a larger umbilical cord, abdominal circumference, kidneys, and bladder. The recipient twin also has polycythemia which can lead to an increased risk of thrombosis or hyperbilirubinemia after birth. Excessive volume can lead to congestive heart failure with cardiomegaly, tricuspid regurgitation and eventually, hydrops fetalis may also develop. The donor twin is the fetus which is smaller and is in the oligohydramniotic sac. This fetus may have IUGR with anemia, hypovolemia, and renal insufficiency. Severe oligohydramnios can lead to an adherence of the donor twin to the uterine wall and complications including pulmonary hypoplasia and other deformations. The mainstay of the management of the recipient twin is the

management of polycythemia, which includes fluid relaxation and partial exchange transfusion in severe cases. In addition, neuroimaging may be needed to detect central nervous system (CNS) injury. In the donor twin, the rapid establishment of intravascular access may be necessary for volume expansion to treat hypovolemia/hypotension and transfuse packed red blood cells to treat anemia.

Breast milk is the best milk for all infants because of its proven health benefits for infants and their mothers. Although challenging, mothers of multiple infants can successfully breastfeed their babies. The rate of initiation and duration of breastfeeding in mothers of multiple births increased when mothers received prenatal consultation that includes information on the benefits of breast milk and strategy for successful breastfeeding. Mothers who want to breastfeed preterm need to establish and maintain milk production by milk expression. Their expressed breast milk can be given to their infants by gavage feeds, cup, or bottle. Mothers of twins should be counselled that they can provide adequate milk for both their infants and that emptying the breast on a regular and frequent basis enhances milk production. Mothers who wish to breastfeed should be supported, and additional guidance given to optimize the feeding of the newborn infants in regards to milk production, feeding schedule, and positioning of infants.

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Disclaimer-These recommendations for "Multifetal Pregnancy Management" have been developed, to be of assistance to obstetricians, gynecologists, consulting physicians and general practitioners by providing guidance and recommendations for managing women with anemia and suffering from hemorrhagic conditions. The recommendations included here shouldn't be viewed as being exclusive of other concepts or as covering all legitimate strategies. The suggestions made here are not meant to dictate how a particular patient should be treated because they neither set a standard of care nor do they guarantee a particular result. To diagnose patients, choose dosages, and provide the best care possible while also taking the necessary safety precautions, clinicians must rely on their own experience and knowledge. The writers or contributors disclaim all responsibility for any harm and/or damage to people or property resulting from the use or operation of any techniques, goods, guidelines, or ideas presented in this content.