Antenatal management of Multiple Pregnancy and Intrapartum management of Twin Pregnancy

University Hospitals of Leicester NHS Trust

Trust ref:C62/2023 PREV C7/2001 & C14/2011

Contents

1. Introduction and Who Guideline applies to

This guideline applies to all UHL staff involved in the care of women/birthing people with twin pregnancy in the Antenatal and intrapartum period. This guideline has been combined with and replaces the Twin pregnancy: Intrapartum care guideline. This guideline should be used, where appropriate, in conjunction with 'Intrapartum Care: Healthy Women and their Babies'

Related UHL documents:

Ultrasound in Obstetrics and Gynaecology
Intrapartum Care UHL Obstetric Guideline

Terms:

MCMA: Monochorionic monoamniotic pregnancy,
MCDA: Monochorionic diamniotic pregnancy.
DCDA: Dichorionic diamniotic pregnancy

TTTS: Twin to twin transfusion syndrome.
ART: Assisted reproductive techniques
TAPS: Twin Anaemia - Polycythemia sequence
PPH: Post partum haemorrhage.
FGR: Fetal growth restriction
FSE: Fetal scalp electrode

Background:

Multiple pregnancy accounts for 3% of live births and its incidence is increasing with use of assisted reproductive technology. University Hospitals of Leicester receives referrals of women/birthing people who have conceived with multiple pregnancies not only from local hospitals (Leicester Fertility Centre based at Leicester Royal Infirmary, CARE Nottingham) but often for women who have conceived at centres abroad.

Consultant led antenatal clinic:

Multiple pregnancy is associated with increased risk to mother and babies and hence care should be shared between Midwives and a Consultant-led clinic. Multiple pregnancies are associated with unique complications and their care and subsequent treatment in pregnancy is different from a singleton pregnancy. Close monitoring and increased contact with health care professionals is required. The overall stillbirth rate in multiple pregnancies is higher than in singleton pregnancies: in 2009 the stillbirth rate was 12.3 per 1,000 twin births and 31.1 per 1,000 triplet and higher-order multiple births, compared with 5 per 1,000 singleton births. The risk of preterm birth is also considerably higher in multiple pregnancies than in singleton pregnancies, occurring in 50% of twin pregnancies (10% of twin births take place before 32 weeks of gestation).

Awareness of increased risk of complications may have a psychological impact on some women/birthing people and they need to be provided with sufficient, written, evidence-based information in early pregnancy to enable them to assimilate information regarding care and treatment and in order to make informed decisions.

The dedicated Consultant led Twin pregnancy clinic at LRI and the FD clinics at LRI and LGH deals with multiple pregnancies and provide information regarding normal antenatal care in multiple pregnancies and with evidence-based information on possible complications and treatment risks to mother and babies at the initial visit.

Diagnosis is by ultrasound scan; this may be in the form of an early pregnancy scan or first trimester screening scan.

2. Guideline Standards and Procedures

2.1 Referral, assessment & screening

- All women/birthing people with a diagnosis of DCDA twins are referred to a dedicated multiple pregnancy clinic at LRI. Whereas MCDA and other higher order multiples are referred to FD clinics. If the diagnosis is made on an early pregnancy scan these women/birthing people should be seen by one of the Antenatal Core Midwives who should ensure an appointment is made in the appropriate clinic.

- Women/birthing people attending specialized Twin pregnancy clinic should have a multiple pregnancy proforma [Appendix] commenced at their initial visit and completed at subsequent visits.

- A risk assessment must be undertaken, and an antenatal care plan should be discussed with the woman. An agreed plan must be documented in the health record. This should include frequency of visits to the specialist clinic and any planned investigations.

- Offer women/birthing people with an uncomplicated DCDA twin pregnancy at least 8 antenatal appointments. A dating scan is carried out between 11^{+2} weeks to 14^{+1} weeks and then at estimated gestations of 20, 24, 28, 32 and 36 weeks. The first clinic appointment is offered between 16-20 weeks and the rest of the appointments are individualised according to the woman's/birthing persons requirements.
- Offer women/birthing people with an uncomplicated MCDA twin pregnancy at least 11 antenatal appointments. Combine appointments with scans at 11^{+2} weeks to 14^{+1} weeks and then at estimated gestations of 16, 18, 20, 22, 24, 26, 28, 30, 32 and 34 weeks.

- Offer women/birthing people with a twin pregnancy information on and screening for Down's syndrome, Edwards' syndrome and Patau's syndrome. If combined screening for Trisomies cannot be completed at the dating scan, Quad testing for Down's syndrome should be offered between 14+2-20+0 weeks of pregnancy. The woman/birthing person should be informed of the reduced detection rates in twin pregnancies with the Quad test. DC twins – 40-50%, MC twins – 80%.

- All women/birthing people should have a full blood count at 20-24 weeks gestation to identify those who need early iron or Folic acid supplementation; this should be repeated at 28 weeks as in routine antenatal care.

- At every visit a woman/birthing person should have an antenatal check (BP measurement and urinalysis).

- Ensure the following has been discussed by 28 weeks at the latest:

    - risks, signs and symptoms of preterm labour
    - possible outcomes of preterm birth
    - place of birth and the possible need to transfer in case of preterm birth
    - timing and possible modes of birth
    - analgesia during labour (or for caesarean birth)
    - intrapartum fetal heart monitoring
    - management of the third stage of labour
    - individualised assessment of her risk of postpartum haemorrhage
    - potential need for blood transfusion, including the need for intravenous access and documentation of this discussion in the woman's/birthing persons notes.

- By 28 weeks of pregnancy, discuss continuous cardiotocography with women/birthing people with a twin pregnancy and their family members or carers (as appropriate) and address any concerns. Explain that the recommendations on cardiotocography are based on evidence from women/birthing people with a singleton pregnancy because there is a lack of evidence specific to twin pregnancy or preterm babies.
- An intrapartum care plan should be discussed and agreed with the woman/birthing person and documented in her health record by the Obstetrician. The plan should be in place by 32 weeks gestation. A Caesarean section would be routinely offered to higher order multiple pregnancies.

- Offer women/birthing people with uncomplicated:

    - monochorionic twin pregnancies elective birth from 36 weeks 0 days, after a course of antenatal corticosteroids has been discussed and offered

    - dichorionic twin pregnancies elective birth from 37 weeks 0 days

- Triplet pregnancies elective birth from 35 weeks 0 days, after a course of antenatal corticosteroids has been offered.

- Women/birthing people with multiple pregnancy do not routinely need assessment in the anaesthetic clinic. Referral criteria remain similar to singleton pregnancies

2.2 Maternal and Fetal complications:

Complications for which risk is increased with Multiple Pregnancy:

Maternal	Fetal
Miscarriage Anaemia Hypertension Bleeding Operative delivery	Twin to Twin Transfusion Syndrome (TTTS) Stillbirth: Twins (11.2 per 1000), Triplets (27.9 per 1000) Preterm delivery (50% in twins with 10% at less than 32 weeks Intra Uterine Growth Restriction (IUGR) Discordant fetal growth problems Congenital abnormalities

- Advise women/birthing people with a twin or triplet pregnancy to take low-dose aspirin 150mg daily from 12 weeks until 36 weeks gestation if they have 2 or more of the risk factors. Further assessment for other risk factors should be made and prophylaxis discussed with women/birthing people.

- Fetal fibronectin should not be used alone in women/birthing people with a twin pregnancy to predict the risk of preterm labour.

2.3 Antenatal Ultrasound Scans in Multiple Pregnancy:

Aims of scan at 11- 14 weeks:

- Confirm viability
- Diagnose multiple pregnancy.
- Determine gestational age
- Determine chorionicity and amnionicity
- Determine number of placentas
- The lambda or T-sign
- Measure nuchal translucency
- Diagnose fetal anomalies apparent at this gestation
- Discordant fetal sex(if patient presents late and scanned after 14 weeks)

Recommendations for multiple pregnancy scans:

- Ensure positional labelling is included e.g. Twin I upper left quadrant.

- Record presence of a lambda or T-sign and noting the number of placental masses. Practice should be adopted by all sonographers, midwives and consultants scanning multiple pregnancies.

- Chorionicity should be confirmed; if in doubt a referral should be made to a Fetal Medicine Consultant within two weeks of the initial assessment.

- Chorionicity should be clearly described in notes with respect to identification of a lambda/ T sign and membrane thickness and an adequate number of images should be stored clearly demonstrating this. If it is difficult to determine chorionicity, even after referral (for example, because the woman/birthing person has booked late in pregnancy), then the pregnancy should be managed as Monochorionic until proved otherwise.

- Women/birthing people conceived by ART will have an EDD calculated from the date of the embryo transfer and this should be followed. These fetuses should under no circumstances be re- dated on CRL measurement.

- All DCDA twin pregnancies should be seen in the specialized Twin pregnancy clinic at LRI and scan frequency should be discussed and scheduled as per the flow chart below.

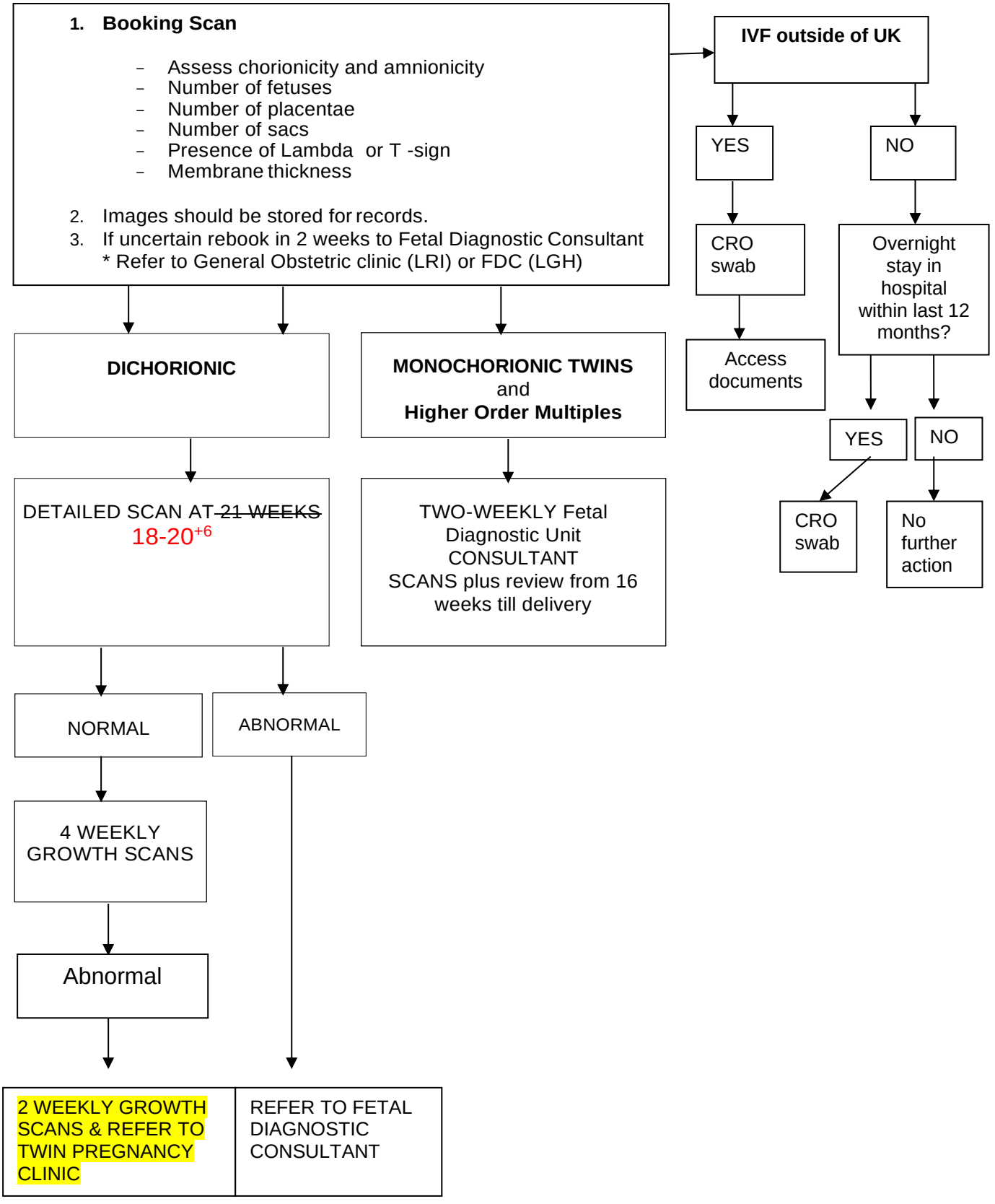
- MCDA twins and all higher order multiples should have all ultrasound scan appointments scheduled with a Consultant Obstetrician

- Growth, amniotic fluid assessment (deepest vertical pool) measurement and fetal Doppler should be performed at each ultrasound scan.

- Ultrasound intervals and a plan to visualise and record specific ultrasound and Doppler parameters should be individualised by the Consultant Obstetrician in the presence of complications or abnormal ultrasound

findings. This should be discussed with the woman/birthing person and documented in her health record.

2.4 Multiple pregnancy ultrasound assessment pro forma



2.5 Monochorionic Twins

Complications with Mochorionic Twin Pregnancies

- TTTS (10-15%)
- Selective IUGR in one twin
- TAPS
- Single fetal death

Twin to Twin Transfusion Syndrome (TTTS):

Diagnosis of TTTS (RCOG green top guideine 51)

- The diagnosis of TTTS is based on ultrasound criteria:
    - the presence of a single placental mass
    - concordant gender
    - oligohydramnios with maximum vertical pocket [MVP] less than 2 cm in one sac and polyhydraminos in other sac (MVP≥ 8 cm at ≤ 20 weeks and ≥ 10 cm over 20 weeks)
    - discordant bladder size – severe TTTS
    - haemodynamic and cardiac compromise – severe TTTS

TTTS should be managed by referral to the Regional Fetal Medicine Centre with facilities for Laser treatment. TTTS can be treated by Laser, amnioreduction, septostomy.

TAPS: Twin Anaemia - Polycythemia sequence:

This may occur in about 5% of monochorionic twin pregnancies and is more common after Laser treatment. It is characterised by inter twin haemoglobin difference in absence of amniotic fluid discrepancy.

TAPS may be diagnosed in antenatal and postnatal period. Antenatally, MCA peak systolic velocity is more than 2 standard deviations in the donor twin.

The diagnosis is difficult in late gestation due to technical difficulties in measuring MCA-PSV. In post-natal period presence of haemoglobin of < 11 g/dl in donor twin and > 20 g/dl in recipient and increased reticulocyte ratio of > 1.7 can help confirm diagnosis.

Fetuses with TAPS may need early delivery and transfer to special care baby unit for transfusion in severe cases.

Monochorionic monoamniotic twin pregnancy:

Twins are at increased risk of stillbirth due to cord entanglement. Therefore, scans should be performed every two weeks and delivery should be timed at 32 weeks after steroid injections for fetal lung maturity.

3. Intrapartum care of twin pregnancy

The following guidance applies to the care of women/birthing people with twin pregnancy in labour. Elective Caesarean section for higher order multiples are carried out according to the individualised care plan made by their Fetal Medicine Consultant which should be followed in such cases.

3.1 Ultrasound scans on admission:

All twin pregnancies should be scanned to confirm presentation in labour. This will reduce chance of undiagnosed breech in labour. It is important to note that twin 1 may not be the presenting twin as these terminologies are only used to identify babies at ultrasound scans.

3.2 Mode of delivery

The optimum mode of delivery with twin pregnancies remains controversial; hence detailed discussion regarding this should be done in the antenatal period and plan documented clearly in notes.

The mode of delivery is decided on the presentation of the first twin, fetal growth and wellbeing of both babies

Presenting twin cephalic: If presenting twin is cephalic, trial of labour is appropriate and caesarean section is indicated for obstetric indications only.

Presenting twin is breech: If presenting twin is breech then the optimal mode of delivery is caesarean section. If the labour is very advanced i.e. cervix fully dilated and breech very low, the management needs to be discussed with the Consultant who needs to attend the delivery.

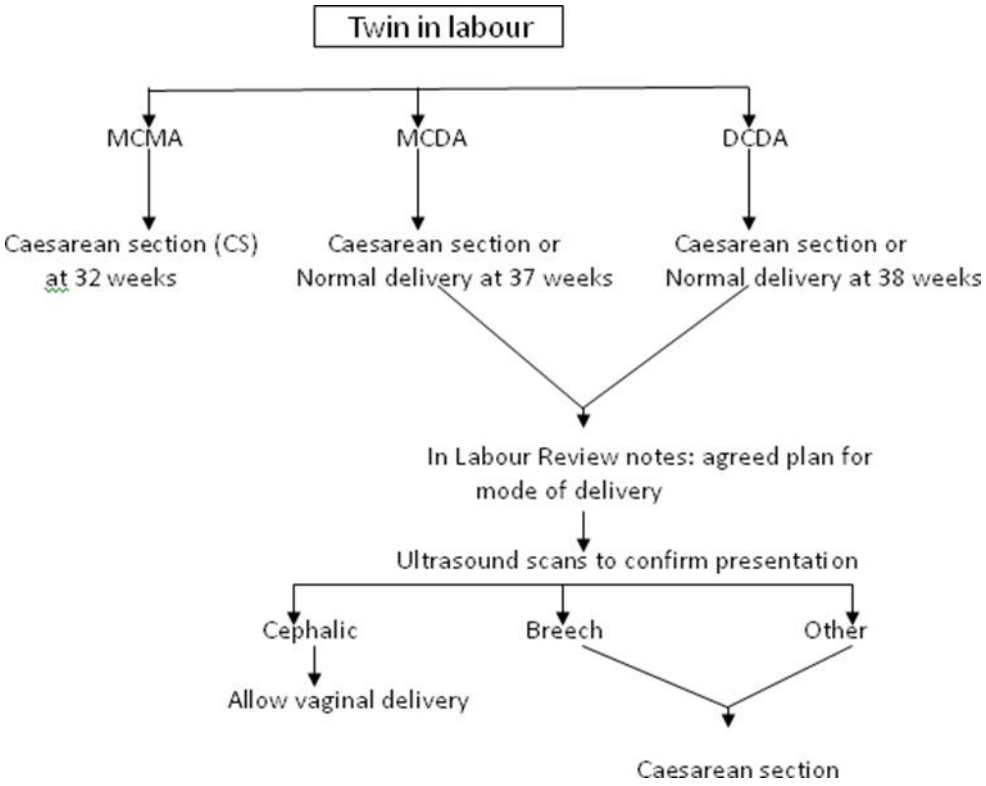
If there is any doubt regarding presentation of the fetuses an early resort to ultrasound scanning to confirm presentation is advisable.

In the presence of complications such as FGR, or TTTS (Monochorionic twins) earlier delivery by caesarean section is indicated.

The absolute indications for elective caesarean section are:

1. MCMA twin pregnancy
2. Placenta praevia
3. Conjoined twins
4. Antenatal evidence of significant fetal compromise likely to be exacerbated in labour.

3.3 Twin labour algorithm



3.4 Timing of delivery:

In view of the increased risk of stillbirth in twin pregnancy offer women/birthing people with uncomplicated:

- monochorionic twin pregnancies elective birth[6] from 36 weeks 0 days, after a course of antenatal corticosteroids has been offered. (See table above)
- dichorionic twin pregnancies elective birth[6] from 37 weeks 0 days
- MCMA twin pregnancies may have cord entanglement and hence should be delivered at 32 weeks by Caesarean section. (Grade C) triplet pregnancies elective birth[6] from 35 weeks 0 days, after a course of antenatal corticosteroids has been offered.

For women/birthing people who decline elective birth, offer weekly appointments with the specialist obstetrician. At each appointment offer an ultrasound scan and perform weekly Amniotic Fluid Index and Doppler assessments and fortnightly fetal growth scans.

3.5 On admission:

Review notes to confirm chorionicity and plan of care during labour. Any anaesthetic care plan should be discussed with the anaesthetic registrar.

Women/birthing people in labour should have early IV access and blood should be taken for full blood count, group and save.

3.6 Analgesia in labour:

- Womens/birthing peoples wishes regarding choice of analgesic during labour should always be respected. However epidural analgesia should be strongly encouraged as during labour there is increased risk of, instrumental delivery, internal podalic version of the second twin and emergency caesarean section
- Ensure this discussion takes place by 28 weeks at the latest.

3.7 Place for delivery:

Delivery room should be equipped with two neonatal resuscitaires, portable ultrasound scanner, instruments for operative vaginal delivery, fetal blood sampling kit, intrapartum and post-partum oxytocin infusion ready

3.8 Monitoring during labour:

- All twin pregnancies should have continuous electronic fetal monitoring in labour. (Grade B) and are more than 26 weeks pregnant.
- Perform a portable ultrasound scan when established labour starts, to confirm which twin is which, the presentation of each twin, and to locate the fetal hearts.
- For women/birthing people between 23^{+0} and 25^{+6} weeks of pregnancy who are in established labour, involve a senior obstetrician in discussions with the woman/birthing person and her family members or carers about how to monitor the fetal heart rates.
- When carrying out cardiotocography from 26 weeks of pregnancy:
    - use dual channel cardiotocography monitors to allow simultaneous monitoring of both fetal heart
    - document on the cardiotocograph and in the clinical records which cardiotocography trace belongs to which baby
    - monitor the maternal pulse electronically and display it simultaneously on the same cardiotocography trace.
    - Consider separating the fetal heart rates by 20 beats/minute if there is difficulty differentiating between them
- When classifying and interpreting cardiotocography take into account that:
    - Twin pregnancy should be considered a fetal clinical risk factor when classifying a cardiotocography trace as 'abnormal' versus 'non-reassuring.
    - fetal scalp stimulation should not be performed in twin pregnancy to gain reassurance after a cardiotocography trace that is categorised as 'pathological'

- Abdominal monitoring is acceptable in early stages of labour. Once in established labour, fetal scalp electrode monitoring benefits and risks should be discussed with the woman/birthing person and offered to be placed on presenting twin and twin 2 should be monitored abdominally.

- A significant loss of contact should be promptly brought to the notice of senior midwives, registrar so that an ultrasound scanner can be used to confirm and relocalise the fetal heart.

- About 10% of monochorionic twin pregnancies can develop TTTS during labour and hence CTG abnormalities should be reviewed with utmost care. (Evidence unclear)

3.10 Progress in labour: [3]

First stage:

Progress in labour should be plotted on partogram with a 4-hour action line.

Combined early amniotomy with use of oxytocin should not be used routinely.

Delay in first stage of labour can be diagnosed if cervical dilatation proceeds at rate of less than 2 cm in 4 hours. Thorough assessment of factors such as changes in the strength, duration and frequency of uterine contraction, descent and rotation of the fetal head should be made before use of oxytocin.

Second stage of labour:

Diagnosis of delay in second stage of labour should be made when it has lasted for 2 hours in nulliparous and one hour in parous women/birthing people.

Registrar should be informed and should assess thew woman/birthing person for suitability of instrumental delivery if delivery is not imminent.

3.11 At delivery:

- Ensure adequate pain relief.

- Senior registrar needs to be present, and Consultant should be informed. Normal delivery can be conducted by midwives or SHO.

- Two midwives, two paediatricians, anaesthetist and an ODP should be in attendance.

- It is recommended to have following solutions ready for use:

    - Sodium chloride 0.9% 49 ml with 10 units Oxytocin added, for use after delivery of Twin 1 if necessary.

    - Sodium chloride 0.9% 36mls with 40 units Oxytocin added for use after the 3rd stage, in all cases.

- After delivery of Twin 1, identify the cord at the vulva with marked clamp.

- The abdomen should be palpated and twin 2 should be stabilised. Transverse or oblique lie should be promptly corrected by external cephalic version and further

stabilised till presenting part is engaged. Alternatively, internal podalic version can be performed. If twin 2 is breech primary breech extraction should be performed.

- Use ultrasound scan to confirm presenting part of twin 2 and close electronic fetal monitoring is recommended

- Artificial rupture of membranes of twin 2 should be performed only after the presenting part has engaged as this will prevent accidental cord prolapse.

- The delivery interval between twins should rarely exceed 30 minutes [4].

- Intertwin delivery interval greater than 30 min has been shown to be associated with increased perinatal morbidity, mortality and caesarean section. [5]

- Very often uterine contractions cease after the delivery of the first twin. This can be corrected by commencing oxytocin infusion as soon as possible in incremental dosage until effective and frequent uterine contractions have been established.

- If at 30 minutes the presenting part of twin 2 is high or delivery is not imminent then transfer to theatre for reassessment and possible caesarean section should be considered.

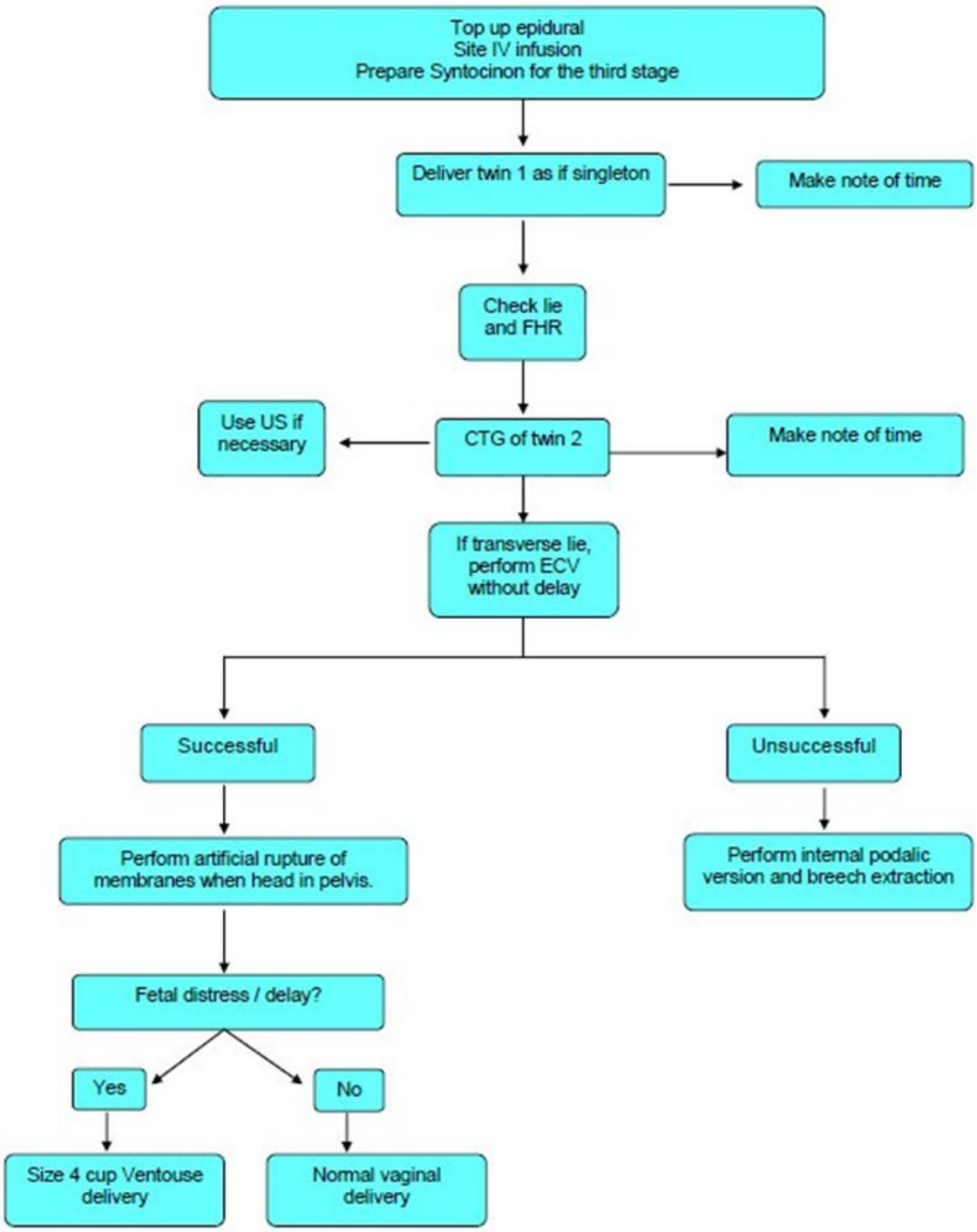
- In theatre assessment should be done by senior registrar/ Consultant with view to perform an artificial rupture of membrane failing which a caesarean section can be performed without delay.

3.12 Third stage:

- Start assessing the risk of postpartum haemorrhage in women/birthing people with multiple pregnancy in the antenatal period and continue throughout labour and the third stage.
- An individualised assessment of her risk of postpartum haemorrhage should be offered.
- Consider active management of the third stage with additional uterotonics for women/birthing people who have 1 or more risk factors (in addition to a twin or triplet pregnancy) for postpartum haemorrhage.
- Regarding uterotonics, it is recommended to commence oxytocin infusion (40 units in 36ml sodium chloride 0.9% after delivery of baby. This should be further maintained for at least two hours.
- Similar infusion should be started in theatre at caesarean section after delivery of baby or at least in recovery to prevent morbidity from PPH.

Vaginal delivery of twins flow chart:

Appendix 1 Vaginal delivery of twins



Algorithm for twin pregnancy. From: Grady K, Howel C, Cox C. Managing Obstetric Emergencies and Trauma. The MOET Course Manual. 2nd ed. London: RCOG Press 2007.

4. Education and Training

For performing ultrasound scans:

All staff performing obstetric scans must hold a recognised ultrasound qualification such as the Diploma in Medical Ultrasound, a Post - graduate Qualification in Obstetric ultrasound, the RCOG Advanced Ultrasound Certificate or Part Two of the FRCR.
Consultant Obstetricians undertaking Fetal growth scans will have outline ultrasound training as Registrars. Further one to one clinical training will then be delivered by Consultants with a recognised ultrasound qualification over a period of approximately 3 months. Once competent in Fetal growth scans an assessment will take place with a Fetal Medicine Consultant prior to independent Fetal growth scanning.

5. Monitoring Compliance

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
Clear antenatal plan of management in labour written and agreed with women. Success of vaginal delivery. Vaginal delivery performed in appropriate setting. Use of partogram in monitoring labour. Use of oxytocin in third stage labour. Placenta examined at delivery and sent for histological examination to confirm chorionicity.	Retrospective case note review	Delivery Suite Lead Obstetrician and Senior Midwife	Annually	Maternity Service Governance Group

Evidence Grades:

Grade A: Requires at least one randomised controlled trial as part of a body of literature of overall good quality and consistency addressing the specific recommendation. (Evidence levels Ia, Ib)

Grade B: Requires the availability of well controlled clinical studies but no randomised clinical trials on the topic of recommendations (Evidence levels IIa, IIb, III)

Grade C: Requires evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities. Indicates an absence of directly applicable clinical studies of good quality (Evidence level IV).

6. Supporting References

1. NICE (2019) Twin and Multiple pregnancy. London https://www.nice.org.uk/guidance/ng137/resources/twin-and-triplet-pregnancy-pdf-66141724389829
2. RCOG (2016) Monochorionic twin pregnancy management Green top guideline 51. London https://obgyn.onlinelibrary.wiley.com/doi/epdf/10.1111/1471-0528.14188
3. RCOG (2017) The management of breech presentation. Guideline no 20b. London https://obgyn.onlinelibrary.wiley.com/doi/epdf/10.1111/1471-0528.14465
4. NICE (2022) Intrapartum care for healthy women and babies https://www.nice.org.uk/guidance/cg190/resources/intrapartum-care-for-healthy-women-and-babies-pdf-35109866447557
5. Dwight, Cruikshank. Intrapartum management of twin gestations. 7. Am J Obstet Gynaecol.2007; 109: 1167-1176.
6. Ingemarson I, Rydhstrom H. Interval between birth of the first and the second twin and its impact on second twin perinatal mortality. Journal of Perinatal Medicine 18, Issue 6, Pages 449–453

7. Key Words

Twin Pregnancy, Multiple pregnancy

The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.
As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

DEVELOPMENT AND APPROVAL RECORD FOR THIS DOCUMENT	
Author: M Khare Consultant Obstetrician **Lead Officer:** F Shakeel Consultant Obstetrician	**Executive Lead:** Chief medical officer

REVIEW RECORD			
Date	**Issue Number**	**Reviewed By**	**Description Of Changes (If Any)**
August 2023	V1	F Shakeel	Combined both multiple pregnancy A/N management & Twin Intrapartum guidelines Now refers to - dedicated clinics, pro forma commencement, risk assessment and ongoing care plan and appointments (highlighted text)