Management of Multiple Pregnancy - Full Clinical Guideline

Reference No.: UHDB/IP/07:23/T2

Contents

1. Introduction

The incidence of multiple births has risen from 10/1000 women giving birth in England & Wales in 1980 to 16/1000 in 2015. The main reason being the use of ART (Nice 2019)
Risks: multiple pregnancies are associated with higher risks for mothers and babies

- Increased risk of miscarriage
- Congenital abnormalities
- Single fetus demise
- Anaemia
- Discordant fetal growth or IUGR
- Twin to twin transfusion syndrome
- Preterm labour
- Hypertensive disorders of pregnancy
- Malpresentations
- Placenta praevia
- Cord compression/cord prolapse
- Increased risk of still birth (increases with number of fetuses)
- Intrapartum difficulties with monitoring second twin heart patterns

- Risk of operative deliveries
- PPH
- Cerebral palsy
- Perinatal mortality (5 times higher risk)
- Post-natal illness and maternal mortality (2.5 times higher risk

In general these women require more monitoring and increased contact with health care professionals, there is increased demand for specialist neonatal resources and more psychological and economic impact on women and their families

2. Purpose and Outcomes

This guidance provides information to minimise maternal and perinatal morbidity and mortality associated with multiple pregnancies. This information is based on approved national guidance on appropriate antenatal care and delivery management for multiple pregnancies. It is good practice to provide appropriate advice, in a timely fashion, to women expecting multiple pregnancies to allow informed choice where appropriate and to inform women regarding the increased surveillance that is required.

3. Abbreviations

ANC	-	Antenatal Clinic
ARM	-	Artificial Rupture of Membranes
ART	-	Assisted Reproductive Technology
CTG	-	Cardiotocograph
DCDA	-	Dichorionic Diamniotic
ECV	-	External Cephalic version
FHR	-	Fetal Heart Rate
FMMC	-	Fetal and Maternal Medicine Centre
FSE	-	Fetal Scalp Electrode
ICSI	-	Intra-Cytoplasmic Sperm Injection
IPV	-	Internal Podalic Version
IVF	-	In Vitro Fertilisation
MCDA	-	Monochorionic Diamniotic
MCMA	-	Monochorionic Monoamniotic
OAA	-	Obstetric Anaesthetic Association
RDS	-	Respiratory Distress Syndrome
TTTS	-	Twin to Twin Transfusion Syndrome
USS	-	Ultrasound Scan

4. Documentation

Please ensure all assessments and individual plans of care are documented clearly in the medical records (electronic or paper, currently), the maternity hand held records and if appropriate the maternity clinical system special instructions page.
If necessary in the second stage of labour a scribe may need to be allocated to assist with documentation.
Documentation in the Maternity records of provision of information following diagnosis should include ‘Screening for Downs syndrome in multiple pregnancy’, the ‘Multiple births leaflet’ and relevant National information e.g. Twins Trust

5. Key Responsibilities and Duties

The increased rate of obstetric complications associated with multiple birth results in a requirement for close collaboration of the different disciplines in our service throughout the pregnancy and delivery. This will include appropriate communication with the anaesthetic and neonatal teams.
The duty consultant obstetrician should be informed of any vaginal twin deliveries. The delivery should be supervised or performed by an appropriately trained obstetrician (middle grade or consultant).
The anaesthetist should be informed if a woman carrying a multiple pregnancy is admitted to labour ward. A paediatrician needs to be called for delivery.

6. Types of Multiple Pregnancy

Monochorionic twins: single placenta with single or double amniotic sacs
In 98% both babies are dependent upon a single placenta. These account for 33% of all twin pregnancies and 66% of monozygotic twin pregnancies and are associated with:

- Increased incidence of congenital abnormalities (especially cardiac and neural tube defects),
- TTTS in 15% of monochorionic twin pregnancies and may develop prior to 20 weeks (mean gestation is 21 weeks) .An acute twin-twin transfusion may occur in late pregnancy, particularly during labour, and hence close monitoring is required.
- Small for gestational age, including fetal growth restriction (30% incidence for one twin and 8% for both),
- It is appropriate to aim for vaginal birth of monochorionic diamniotic twins where twin 1 is cephalic the pregnancy has been otherwise uncomplicated, unless there are other specific clinical indications for caesarean section.
- MCDA delivery should be planned for 36 weeks of gestation, unless there are indications to deliver earlier,
- MCMA are 1% of all twin pregnancies. All have cord entanglement which precludes vaginal delivery, and they should be delivered by a planned elective caesarean section at 32-34 weeks, (dependant on individual needs) & after administration of corticosteroids. There is a 26% risk of brain damage for each twin.
- Conjoined twins are rare and require immediate referral to Fetal Medicine for assessment and discussion

Dichorionic / Diamniotic Twins: Two placentae with two amniotic sacs
This most common multiple gestation does not rule out monozygocity (identical twins) if gender is concordant , as the embryo could have divided very early in the twins' development. IVF and ICSI treatments may result in twin gestations (usually DCDA). Fetal growth restriction and fetal abnormality incidence is double that of singleton pregnancies (as there are two foetuses) if the twins are dizygotic. Delivery should planned for 37weeks gestation if the pregnancuy is ongoing at that gestation.

Triplets (or higher order gestations): multiple variations
Multiple pregnancies of three or more babies have a higher risk of the previously listed complications than twin pregnancies and are therefore assessed more frequently in the antenatal period. In the UK, multiple pregnancies of three or more are delivered by caesarean from 35 weeks, though most will labour before that gestation and require an emergency Caesarean. It is unclear, given the higher chance of premature delivery, whether elective antenatal steroid administration at 28 weeks to minimise RDS incidence is indicated. This decision is taken by a senior obstetrician.

7. Antenatal Care

Diagnosis of multiple pregnancy is usually made at the first trimester ultrasound scan (if requested combined with early nuchal translucency screening) when the sonographer will diagnose viability and chorionicity by the number of placentae and the appearance of the membrane between the sacs ('lambda sign' or inverted T) – if present. Scans after 14 weeks are less good at determining chorionicity.

All multiple pregnancies are referred to consultant-led antenatal services at the Royal Derby Hospital. A repeat FBC at 20-24 weeks is advised to identify any early requirements for iron/folic acid supplementation, and repeated at 28 weeks as per routine ANC pathway. Iron (depending upon tolerance of gastrointestinal tract disturbance) and folic acid are recommended throughout the pregnancy. All the women are advised to deliver in hospital.

- Monochorionic/Monoamniotic (MCMA) twins are referred directly to FMMC to confirm amnionicity. Care continues with FMMC with 2-3 weekly scans from 14-16 weeks gestation.
- Monochorionic/Diamniotic (MCDA) twins are booked into ANC to assess any early pregnancy needs, including assessment for aspirin, and referred to Fetal Medicine, where they are scanned fortnightly from 16 weeks gestation Full counselling about the specific risks of MCDA pregnancy takes place, along with planning for the rest of the pregnancy. All Monochorionic twins will have an anomaly scan in FMMC between 18-20+6 weeks gestation.
- All triplets require early referral (ideally prior to 12 weeks' gestation if the diagnosis is made) to Fetal Medicine to discuss specific risks and allow consideration of selective reduction prior to 14+ weeks' gestation. Ongoing care is in Fetal Medicine, with fortnightly scans.

- DCDA twins, with no other risk factors, will have their anomaly scan including cardiac structure at 18-20+6 weeks in the ANC ultrasound scan department. They will then need monthly appointments from 24 -36 weeks in consultant-led antenatal clinic with growth scans at each visit, ideally in the allocated twins' clinic, unless there are over-riding maternal or fetal risks requiring other input..

Diagnostic monitoring for fetal growth restriction in dichorionic twin and trichorionic triplet pregnancies

1. At each ultrasound scan from 24 weeks, offer women with a dichorionic twin or trichorionic triplet pregnancy diagnostic monitoring for fetal weight discordance using 2 or more biometric parameters and amniotic fluid levels.

2.Continue monitoring for fetal weight discordance at intervals that do not exceed:

- 28 days for women with a dichorionic twin pregnancy
- 14 days for women with a trichorionic triplet pregnancy.

3.Calculate and document estimated fetal weight (EFW) discordance for dichorionic twins using the formula below ([EFW larger fetus − EFW smaller fetus] ÷ EFW larger fetus) × 100

4.Calculate and document EFW discordance for trichorionic triplets using the formula below:
([EFW largest fetus − EFW smallest fetus] ÷ EFW largest fetus) × 100
and ([EFW largest fetus − EFW middle fetus] ÷ EFW largest fetus) × 100

5. Increase diagnostic monitoring in the second and third trimesters to at least weekly, and include doppler assessment of the umbilical artery flow for each baby, if:
   - there is an EFW discordance of 20% or more and/or
   - the EFW of any of the babies is below the 10th centile for gestational age.

Clinical care should be provided by a nominated multidisciplinary team consisting of specialist obstetricians, midwives and sonographers

7.1 Twin to Twin Transfusion

Suspected TTTs will be monitored closely by the FMMC specialists.

7.2 Planned mode / timing and place of delivery

The different modes of birth and timing of the delivery must be discussed antenatally with the woman, including risks and benefits. Women should be given the opportunity to make informed decisions, in partnership with their health professionals.

- For complex MC Twins/ triplets or higher order the Fetal medicine consultant will co-ordinate the birth plan with the woman, her family and other key individuals.
- Uncomplicated MC twins are to be offered an elective birth at 36 weeks gestation
- Uncomplicated DCDA are to be offered an elective birth at 37 weeks gestation

Women who decline elective birth need to be offered:

- Weekly appointments in consultation with fetal medicine team
- US scan & weekly biophysical profile assessments/fortnightly growth scans

If a first twin is cephalic (80% of cases), and there are no contraindications, then vaginal delivery is recommended and is successful in around 80% of cases.
There is no evidence that planned caesarean section in an otherwise low risk pregnancy improves perinatal outcomes.
There is also no evidence that caesarean delivery is protective in preterm vaginal deliveries.
Twin gestations where vaginal delivery is anticipated are advised to consider an epidural in labour. Referral to the anaesthetist antenatally may be required if the woman wishes to discuss this further or has any anaesthetic risk factors. Provide the patient information regarding analgesia in labour: Pain Relief in Labour (OAA publication given in booking packs) and document in the maternity record that it has been received by the woman.

The decision to perform a caesarean section, made at consultant level, is usually indicated in the following cases:

- When there are complications e.g. severe growth discordance, suspected fetal compromise
- Twin 1 is non-vertex,
- Higher order pregnancy e.g. Triplets,
- MCMA twins,
- Conjoined twins,
- Placenta praevia or low-lying placenta and/or vasa praevia,
- Certain congenital abnormalities,

If a Caesarean section is planned in the antenatal period, provide the patient information leaflet ‘Information regarding your planned Caesarean birth’ and document that it has been given to the woman in the maternity records.

It is important to inform the woman regarding the increased risk of operative vaginal delivery (including the 2nd twin)

The plan of care for recommended mode of delivery must be documented in the medical records and on the maternity clinical system special instructions page.

8. Intrapartum care: see appendix A flow chart

After 26/40 it is strongly recommended that the woman should have continuous electronic fetal monitoring and documented that she has been advised of this. For women between 23+0 and 25+6 who are in established labour, involve a senior obstetrician in discussions with the woman about how to monitor the fetal heart rates (NICE 2019).

If a vaginal delivery is being considered for a twin pregnancy, labour and delivery should take place in a suitable room with the additional space & facilities required.
The consultant obstetrician on duty must be informed.
In addition, the anaesthetist and theatre team are informed and to be available if required.
Delivery in theatre may be considered for vaginal delivery of very premature twins, particularly if twin 2 has a non-vertex presentation.
The staff required at delivery will ideally include two midwives, two obstetricians and two paediatric/ANNP staff.

Epidural analgesia is recommended for pain relief, as there is an increased risk of operative delivery of one or both twins. The epidural must be kept fully effective for second stage, especially if the second twin is non-vertex presentation. If any form of version is required for the second twin the success rates are higher with an effective epidural. In the event that an emergency caesarean is required epidural analgesia reduces the need for general anaesthetic.

8.1 Management of the 1st Stage of labour

- Admit to labour ward.
- Both fetal heartbeats need to be identified and CTG monitoring commenced, ensuring that the two distinct heartbeats are identified and recorded on the CTG paper and in the maternity record. If any doubt USS should be used.
- Inform the co-ordinating midwife and inform the registrar who will assess the woman, confirming lie and presentation of both fetuses using ultrasound. The duty consultant obstetrician, the anaesthetist and theatre team are made aware of the presence of twins on labour suite.
- Once labour is diagnosed IV access is established and a full blood count and group & save sample sent to the laboratory.
- Consider applying a FSE to twin 1 to assist with fetal heart monitoring, as this allows for a definite distinction of fetal heart recordings between the babies.
- Epidural analgesia is offered for pain relief in the first stage of labour.
- Augmentation with syntocinon can be used with the same indications as with singleton labour before the delivery of the 1st twin and for between twins for hypotonic contractions.

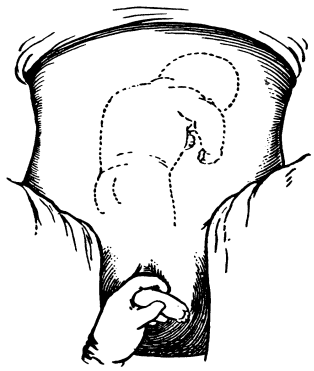
8.2 Management of the 2nd stage of labour

- Once full dilation is established, inform the obstetric registrar.
- Ensure that the epidural is providing effective analgesia.
- Oxytocin; Syntocinon infusion as per local policy for augmentation, ready for infusion after the delivery of Twin 1 if contractions needed.
- If already in use for augmentation; increase to the next level following the birth of Twin 1. If not in use for augmentation; start at normal regime. Increase to next level or higher start dose only per orders of the obstetrician in attendance (registrar level or consultant).
- Call neonatal team when delivery is imminent.

- Immediately after the delivery of twin 1 an obstetrician should establish the lie and presentation of twin 2, using ultrasound.
- A registrar or experienced midwife should stabilise the lie of twin 2.
- If twin 2 is a longitudinal lie with a normal FHR, consider oxytocin (with the time interval between incremental doses to 10 minutes, if contractions have reduced)
- Continuous CTG monitoring of twin 2 is required throughout the second stage of labour.
- Once the head of twin 2 is fixed within the pelvis then an ARM can be performed and active pushing re-commenced.
- Once regular contractions have commenced delivery of twin 2 should ideally occur within 30 minutes. The risk of acidosis and caesarean section of twin 2 increase in relation to length of time in between delivery of the twins
- Delivery of twin 2 should be expedited by assisted delivery if spontaneous delivery is not anticipated within 30 minutes of regular contractions resuming.
- If the presentation of twin 2 is non-vertex following delivery of twin 1 the obstetrician should confirm the exact presentation with ultrasound, while the second obstetrician continues to stabilise twin 2 per abdomen. If the lie is not longitudinal internal podalic version or external cephalic version may be required.
- DCDA twins: deferred cord clamping as normal– and ensure clear identification of the first twin cord

- MCDA twins: deferred cord clamping is contraindicated because of the risk of acute twin–twin transfusion at delivery

8.2.1 Internal podalic version (IPV) and breech extraction or assisted breech delivery has a higher success rate (97%), lower rate of fetal distress (1%) and fewer maternal complications than a Caesarean section.



To undertake IPV the operator must identify the fetal heel prior to rupture of the membranes, bring the foot down into the vagina to fix the breech into the pelvis and then perform an ARM during a contraction (as late as possible during the procedure)

8.2.2 Alternatively, external cephalic version (ECV) may be performed. This may be the technique with which the operator is most familiar, and some studies have reported good success rates [3], although others indicate much higher risks of emergency Caesarean section (38%) and fetal distress (18%) with ECV [2]. ECV should be performed in the absence of a contraction. Once a longitudinal lie and cephalic presentation is obtained, this should be maintained by an assistant, while a contraction is awaited, so that ARM may be performed with the head fixed in the pelvic brim. If active pushing results in good descent of the head, then normal delivery may be conducted by the midwife. The obstetrician should remain until delivery.

Note: if ECV is not quickly successful, then prompt recourse to IPV and breech extraction, or if not possible, then emergency Caesarean section, is imperative.

- Cords should be clamped after each delivery making sure each is identified to each twin separately. i.e. twin 1 – single clamp / twin 2 double clamp (consider higher order multiple pregnancy e.g. 3 clamps for triplets etc)
- Cord gas analysis should be obtained in all multiple deliveries and recorded in the labour notes.

8.3 Management of the 3rd Stage of labour

- Following delivery of twin 2's shoulders (or head if presentation was breech at delivery), active management of the third stage can take place.
- There is a high risk of primary postpartum haemorrhage following twin deliveries and therefore 40 units of syntocinon in 40ml normal saline (our guideline) can be used electively to deliver 10u Syntocinon per hour for 4 hours.

9. Monitoring Compliance and Effectiveness

As per the business unit audit forward programme

10. References

Confidential Enquiry into Maternal and Child Health. Perinatal Mortality 2007. London CMACH 2009. www.cmace.org.uk

Knight M, Tuffnell D, Kenyon S, Shakespeare J, Gray R, Kurinczuk JJ (Eds.) on behalf of MBRRACE-UK. Saving Lives, Improving Mothers' Care - Surveillance of maternal deaths in the UK 2011-13 and lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2009-13.
Oxford: National Perinatal Epidemiology Unit, University of Oxford 2015
www.npeu.ox.ac.uk/mbrrace-uk/reports

Royal College of Obstatricians and Gynaecologist. Management of Monochorionic Twin pregnancy. London: RCOG 2008. www.rcog.uk

NICE – NG137 Twin and Triplet Pregnancy. London NICE 2019 www.nice.org.uk

NICE – QS32 - Caesarean Section. NICE: London 2013 www.nice.org.uk

Fetus Papyraceous

In the event of a multiple pregnancy where one or more babies have died earlier in the pregnancy there may be a fetus papyraceous or recognisable remains of the deceased baby. Parents need to be prepared for this and may wish to be involved in the sensitive management of this situation. This will need to be documented in the woman's obstetric notes.

The fetus papyraceous may be attached to the placenta or membranes.

- If it is possible to easily separate the fetus papyraceous from the placenta it can be managed separately. If fetus papyraceous is within the membranes it can be removed with that portion of membrane and findings documented in the obstetric notes.
- If it is not possible to separate, then the placenta should be sent to histopathology for the pathologist to confirm fetal tissue and arrange sensitive cremation.

Ensure this is documented on the histopatholgy clinical details form and placental histology consent form. Inform the parents.

A description of the fetus papyraceous needs to be documented in the woman's obstetric notes. If not being sent to histopathology the tissue will need 2 identification labels and be placed in an angel pocket, sensitively wrapped in a blanket before being put into a body bag for transport to the mortuary after the parents have left the ward.

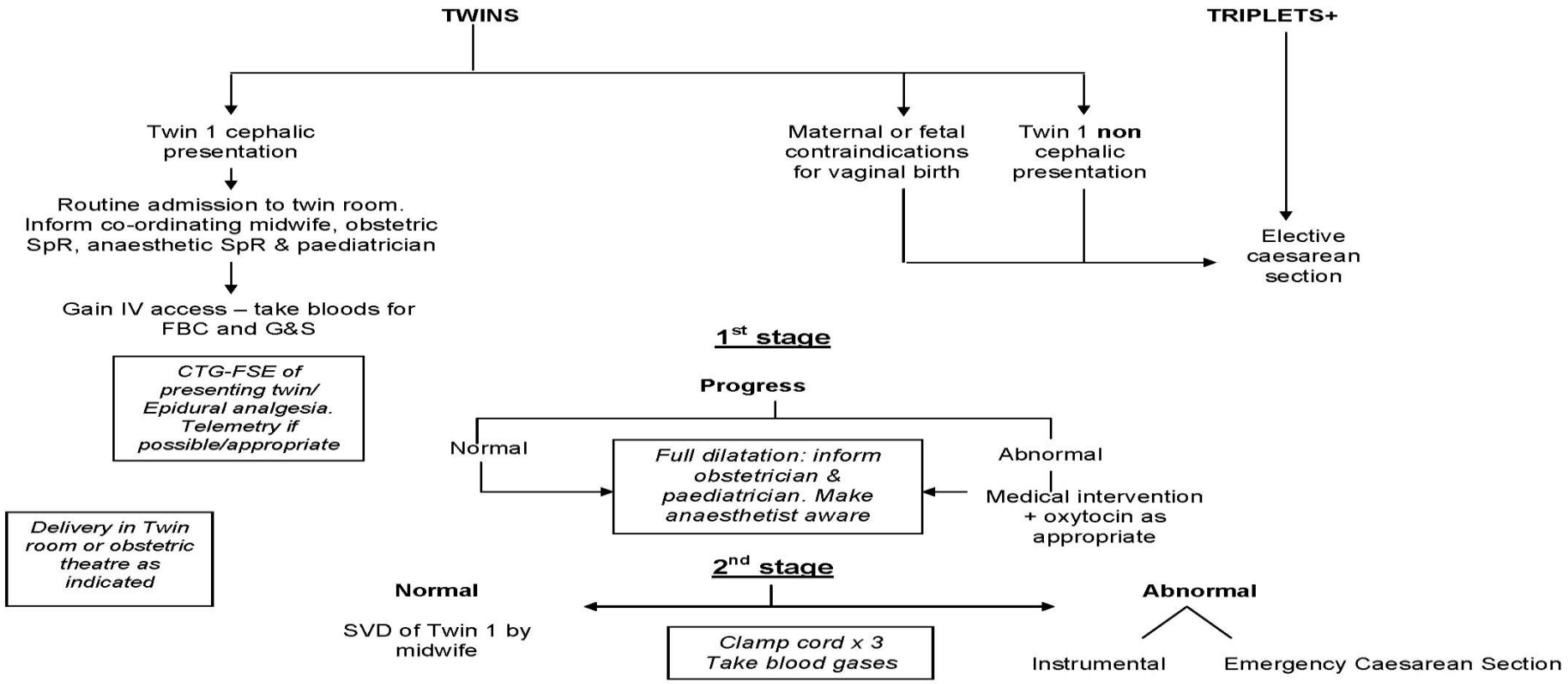
If the fetus papyraceous is managed on the labour ward, ensure funeral choices have been discussed with the parents. Offer the option to the parents to speak to the hospital chaplain and/or the bereavement midwife. Complete the funeral arrangement form.

If the fetal loss is under 24 week gestation the appropriate paperwork needs to be completed and sent to bereavement services along with the green copy of the funeral arrangement form.

Parents should be offered the option of a memento certificate to recognise their baby.

If the parents do not want to be involved at all then the appropriate documentation needs to be completed and the fetus papyraceous will have a hospital arranged cremation.

MULTIPLE PREGNANCY ALGORITHM

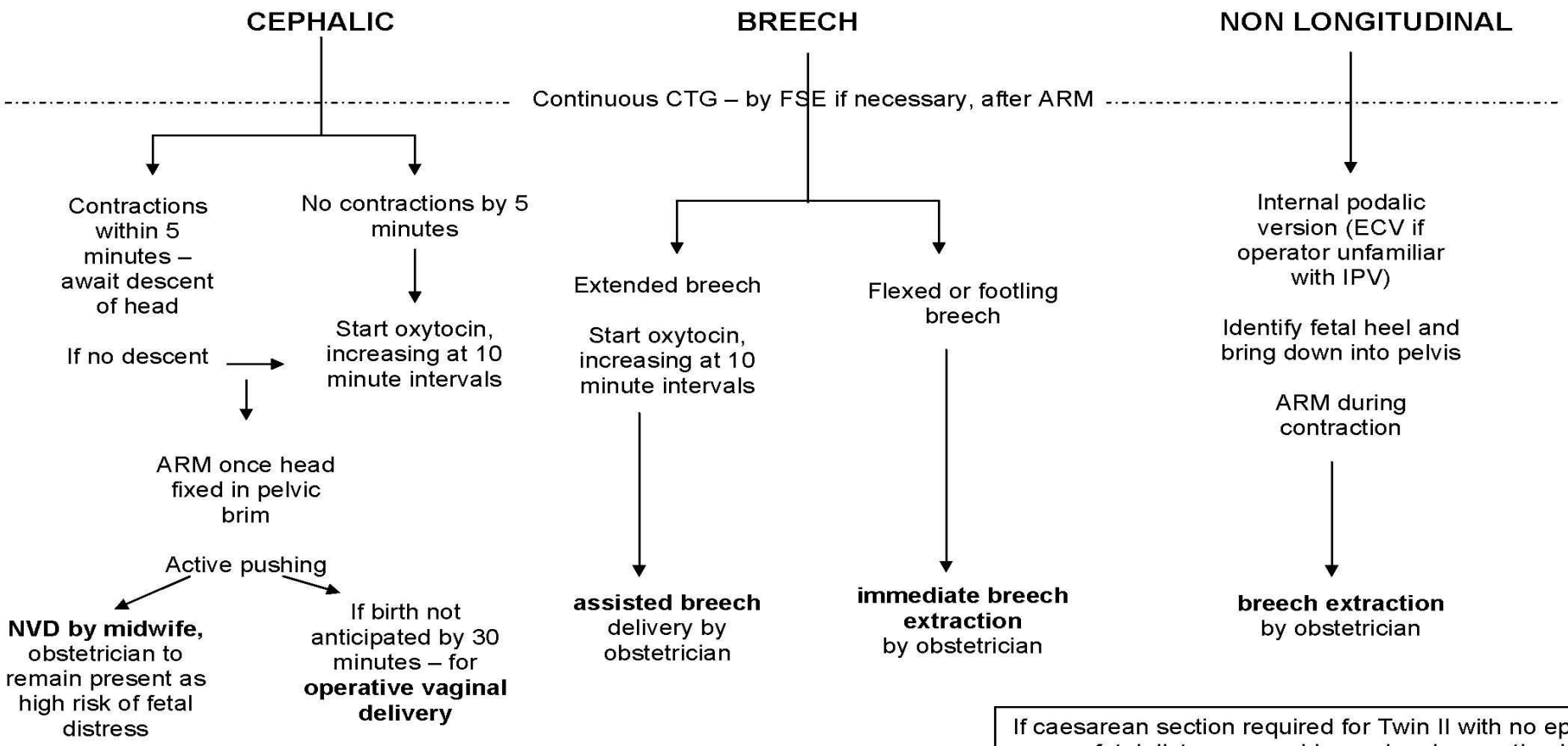


DO NOT GIVE SYNTOMETRINE/SYNTOCINON FOR 3rd STAGE

Obstetrician to establish lie and presentation of 2nd twin using USS

TWIN II

Ensure effective epidural



If caesarean section required for Twin II with no epidural or fetal distress, consider regional anaesthesia

Documentation Control

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Version / Amendment	Version	Date	Author	Reason
	1	Nov 2005	Dr Ashworth Miss Hamilton Consultant Obstetricians	
	2	May 2011	Miss Kieran Consultant Obstetrician K.James - MW Dr Tyira Siddiq – Speciality Registrar	Update in line with CNST Standards
	3	September 2016	Dr Nudrat Hashmi - Speciality Registrar / Miss Rajendran – Consultant Obstetrician	Review
UHDB	1	Dec 2019	Miss S Rajendran – Consultant Obstetrician	Review
	2	Mar 2023	Miss J Rowley - Consultant Obstetrician (RDH) Dr J Ashworth - Consultant Obstetrician (RDH) Dr El Naggar - Consultant Obstetrician (QHB)	Review
Intended Recipients: All Staff caring for women with multiple pregnancies				
Training and Dissemination: Cascaded through lead midwives/doctors / Published on Intranet / NHS mail circulation list. Article in Business unit newsletter				
To be read in conjunction with:				
Consultation with:	Maternity Guideline Group			
Business Unit sign off:	19/06/2023: Maternity Guidelines Group: Miss S Rajendran – Chair 19/06/2023: Maternity Governance group - Mr R Deveraj			
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Key Contact:	Joanna Harrison-Engwell			