Norfolk and Norwich University Hospitals NHS
NHS Foundation Trust

Trust Guideline for the Management of: Multiple Pregnancy

A clinical guideline recommended for use

In:	Maternity Services
By:	Maternity health professionals
For:	Management of Multiple Pregnancies
Key words:	Multiple pregnancy, Ultrasound, Chorionicity, Screening, Delivery
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Reported as approved to the:	**Clinical Effectiveness Committee** **Clinical Governance Committee**
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Guideline Reg. No:	AO26

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Objective

This guideline aim to offer best practice advice on the care of women with multiple pregnancies.

Introduction

The incidence of multiple pregnancy is rising mainly due to increasing use of assisted reproductive techniques. Twin pregnancies currently account for around 1.5% of live births, with 2/3rd being dizygotic (non-identical) and 1/3 monozygotic (identical).

Dizygous twins are dichorionic. Monozygous twins can be dichorionic (10%), monochorionic (90%), monoamniotic (0.01%), or conjoined depending on when the conceptus divides.

Multiple pregnancy in general are associated with an increased incidence of:

- Miscarriage (10% in MC twins, 2% in DC twins vs 1% in singleton pregnancies)
- Congenital anomalies (specially cardiac and neural tube defects): The prevalence of major defects is about 1% in singletons, 1% in each of
- DC twins and in 4% in each of MC twins
- Preterm delivery (10% in MC, 5% in DC twins vs 1% in singletons at <32 weeks) and increased demand for specialist neonatal resources
- Stillbirth
- Intrauterine growth restriction (birth weight below 5th centile in MC twins 30%, DC twins 20% vs 5% in singleton pregnancies)

Maternal complications include:

- anaemia
- hypertensive disorder/pre eclampsia
- antepartum and post partum haemorrhage
- operative delivery
- increased maternal mortality; 2.5 times that for singleton births.

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Protocol for visits in uncomplicated twin pregnancies

Gestation (weeks)	Review by	Purpose of visit
8-12	CMW	Booking visit Discuss screening; combined test (Nuchal translucency at 11^{+2}-14^{+1} weeks + 1st trimester bloods) Booking bloods Book early scan
11^{+2} - 14^{+1}	ANC	Aim to determine all in the same 1st trimester scan: -gestational age -chorionicity -the risk of Down's syndrome Assign nomenclature to the baby clearly and write with the scan report Use the largest baby to measure the gestational age Check booking blood results Consider aspirin in those at risk of hypertensive disease in pregnancy* Risk assess for thrombosis and consider prophylaxis in those at risk Risk assess for gestational diabetes and consider oral glucose tolerance testing during pregnancy – refer to departmental CG AO6 Routine advice about diet etc Give information about Twins and Multiple Birth Association (TAMBA) – useful resource to prospective parents
15	CMW	Routine clinical assessment^
16	ANC	USS (only in MC twins) + Routine clinical assessment
18	ANC	USS (only in MC twins) + Routine clinical assessment
20	ANC	Anomaly scan + Routine clinical assessment + **Check Hb**
22	ANC	USS + Routine clinical assessment (only for MC)
24	ANC	USS + Routine clinical assessment
28	ANC	USS + Routine clinical assessment + Routine bloods (FBC and antibody screen)

		Discuss timing & mode of delivery Discuss infant feeding if not previously - may require referral to lactation specialist midwife
32	ANC	USS + Routine clinical assessment Check and document FBC and antibody screen from 28 weeks Review timing and mode of delivery – give either date for induction date or elective LSCS
34	ANC	USS(only for MC twins) + Routine clinical assessment
36	ANC	USS + Routine clinical assessment **Offer delivery to MC twins;** if declined: weekly clinic appointment with scans
37	ANC	**Offer delivery to DC twins**; if declined: weekly clinic appointment with scans

^Routine Clinical assessment: General systemic enquiry, BP, urinanalysis, health promotion, USS review

Prevention of Pre-eclampsia in Multiple Pregnancy

*Advice women for 75mg of Aspirin daily until the birth of the babies if they have one or more of the following risk factors for hypertension:

-first pregnancy

-age ≥ 40years

-pregnancy interval of more than 10 years

-booking BMI ≥ 35 kg/m^2

-family history of pre-eclampsia

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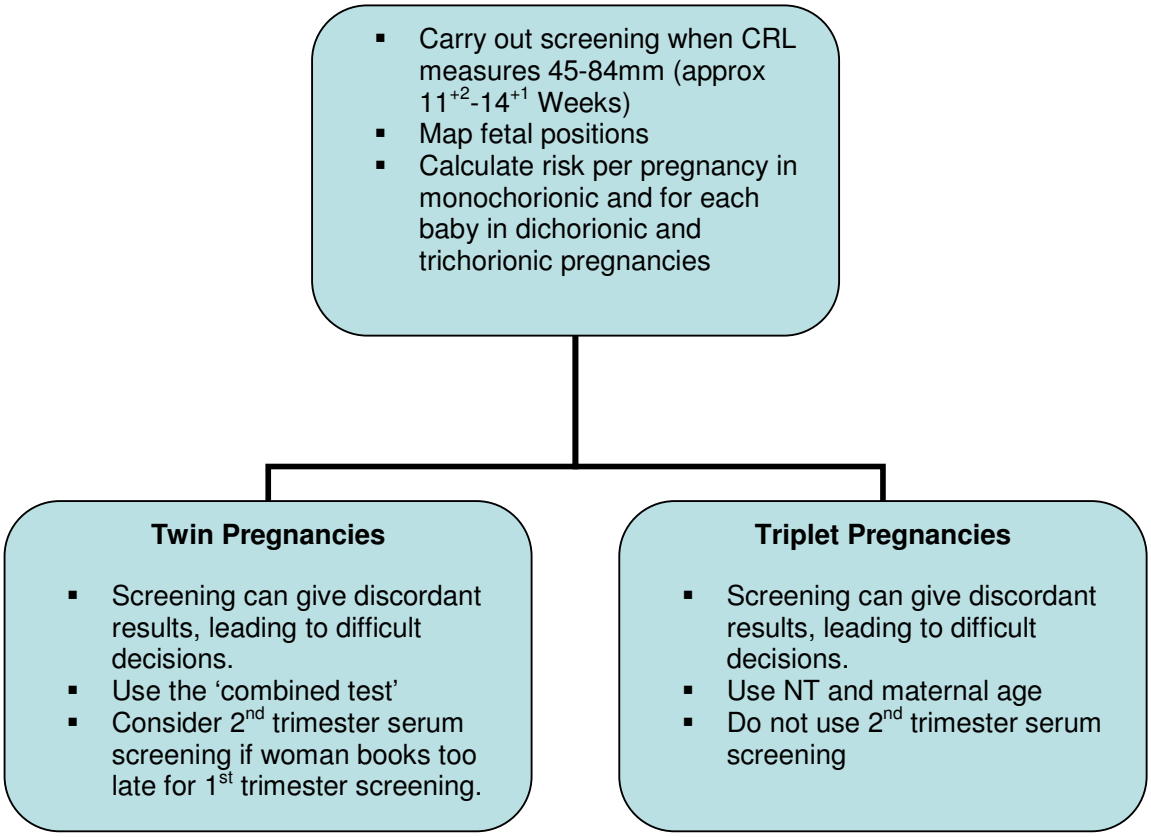
Screening for Down syndrome:



CRL-Crown Rump Length NT-Nuchal Translucency MC-Monochorionic DC-dichorionic

Women with a Down Syndrome screening risk of more than 1:150 should be offered for referral to fetal medicine specialist.

Structural abnormalities (e.g. Cardiac abnormalities)

Women should be offered screening as in routine antenatal care. Allow longer time for scanning in multiple pregnancies; 45 minutes for the anomaly and 30 minutes for growth scans.

Intra Uterine Growth Restriction

Estimate fetal weight discordance using two or more biometric parameters at each scan from 20 weeks.

Consider a ≥ 25% difference in size as clinically important and refer woman to fetal medicine department.

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Triplet pregnancy & higher multiples:

Should be referred to fetal medicine unit once diagnosis made – referral can be made by EPAU or Obstetric ultrasound using fetal medicine referral form and patients should be seen within 5 working days from diagnosis by an FM specialist.

Published data shows that the risk of cerebral palsy for triplets is between 28-45 per 1000 infant survivors compared to 1.6 per 1000 for singletons and between 7.3 to 13 per 1000 for twins.

Women should be offered fetal reduction to improve the perinatal outcome, and is optimally scheduled between 11-14 weeks so early referral is advised

ANC + USS from 16 weeks every 2 weeks at fetal medicine department

Early involvement of the Neonatal staff

Delivery will be by caesarean section

Offer delivery from 35 weeks, if declined: weekly clinic appointment with scans

Monochorionic Monoamniotic Twin Pregnancies

1% of all twin pregnancies.

If diagnosed by obstetric ultrasound, should be referred to fetal medicine for individualised care.

Development of twin to twin transfusion syndrome (TTTS) **in Monochorionic pregnancies**

Risk of TTTS (akso referred to as Feto-fetal transfusion syndrome FFTS) in Monochorionic twins:15% (1 in 6)

Peak incidence is between 16-24 weeks, although can be later

Untreated TTTS can lead to perinatal mortality of > 90%

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Quintero staging system is reproduced below:

I	Polyhydramnios/Oligohydramnios, Donor bladder visible
II	Non-visible donor bladder
III	Abnormal dopplers: Absent EDF in Umbilical artery, Pulsations in Umbilical vein, absent a wave in ductus venosus
IV	Hydrops in one or both fetuses
V	Fetal demise

All suspected TTTS should be discussed with a fetal medicine consultant (MJC, RPS, AJM or RCW) on day of diagnosis with plan made for fetal medicine review

Stage 1 disease may be managed with close observation in hope of spontaneous resolution

Fetoscopic laser ablation or selective reduction by radiofrequency ablation may be helpful. Approximate figures for treated TTTS by laser ablation are 1/3 both twins survive, 1/3 one twin survives, and 1/3 both twins die.

After fetal medicine review the fetal medicine specialist may refer to a FM centre offering laser ablation – most of the NNUH patients are referred to Fetal Care Centre at Queen Charlotte's and Chelsea Hospital.

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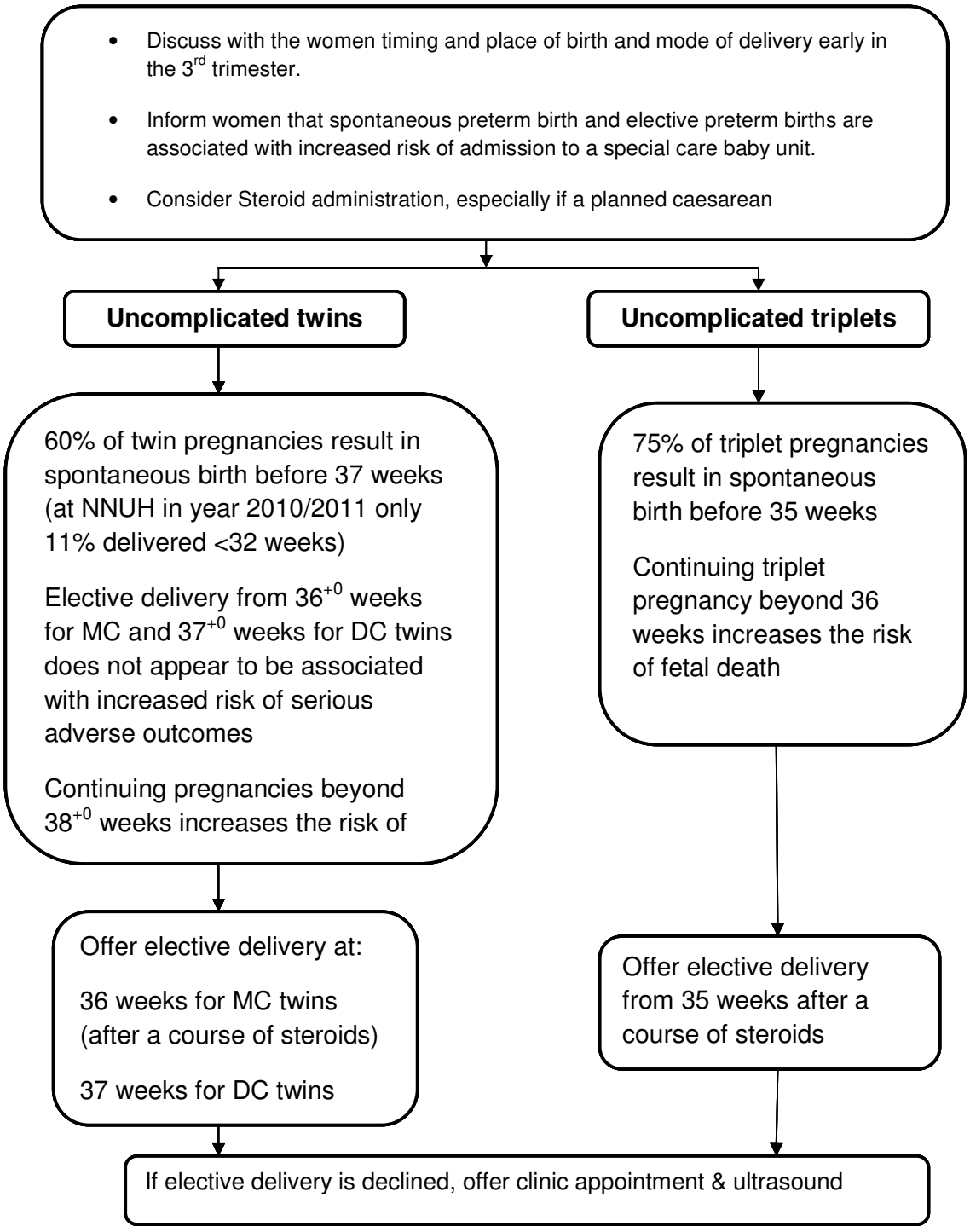
Timing of delivery



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Antenatal Preparation – Mode of Delivery

The optimal mode of delivery for twins remains controversial. The NICE organisation has made no recommendations towards mode of delivery at present.

Discussions of mode of delivery should commence antenatally early in the third trimester (by 28 weeks appointment).

IA clear plan for mode, place and time of delivery should be documented in women held records by 32 weeks and appropriate arrangements made for either labour induction or elective LSCS when the pregnancy reaches gestational age criteria in timing of delivery section

Monochorionic Diamniotic and Dichorionic Diamniotic Twin Pregnancies

Twin 1 Non Vertex prior to delivery

For DCDA and MCDA twin pregnancies where the presenting twin is non-vertex then it is recommended that delivery is by LSCS to prevent obstruction through either compound presentation or “jaw locking”.

Twin 1 Vertex Prior to Delivery

The optimal mode of delivery remains controversial. Full discussion should take place between the consultant and the women.

It is appropriate to aim for vaginal birth of MCDA or DCDA twin pregnancies unless there are accepted, specific clinical indications for caesarean section, such as previous caesarean section, evidence of TTTS (FFTS), or fetal growth restriction etc. (RCOG CG 51). Antenatal counselling about vaginal delivery should include information and documentation about place of birth (consultant led unit), pain relief (including the potential benefits of use of epidural anaesthesia), members of staff present at delivery, need for fetal monitoring (including use of scalp electrode in twin 1), use of syntocinon, active management of third stage, use of instrumental vaginal delivery.

Some authors argue that there is a small but increased risk of delivery related perinatal death to the 2nd twin (1 in 264) (Smith et al, 2005) and suggest Caesarean delivery may be protective for 2nd twin. However, available evidence does not support routine caesarean section for all twin pregnancies:

A systematic review (Hogle et al, 2003) did not find any significant difference in perinatal or neonatal mortality for twins delivered after planned caesarean delivery compared to those delivered after planned vaginal delivery. There may be higher respiratory problems in neonates after elective caesarean delivery (Hogle et al, 2003, Levine et al, 2001).

Another systematic review found similar neonatal morbidity and mortality rates for the second twin in planned vaginal deliveries as compared to planned caesarean deliveries (Rossi et al, 2011).

A decision analysis based on data from a cohort of 2597 twin pregnancies ≥34 weeks with the first twin in cephalic presentation concluded a strategy of planned vaginal delivery was preferable (Vendittelli F 2011).

A woman may choose elective LSCS in an uncomplicated MCDA or DCDA twin pregnancy and the medical staff should discuss and document the risks of planned LSCS with the woman as part of routine discussions about mode of delivery.

Unplanned LSCS for twin 2 after vaginal delivery of twin 1

Reported incidence of LSCS for twin 2 after vaginal birth of twin 1 are between 4-10% of planned vaginal births (Wen et al 2004), (Breathnach et al 2005).

Monochorionic Monoamniotic Twin Pregnancy

For an MCMA twin pregnancy, elective CS is offered from 32^{+0} as perinatal mortality of continuing is in region of 10% (compared to perinatal mortality of around 1-2% for delivery of normally grown fetus as 32^{+0} weeks.

Triplet Pregnancies

Triplet pregnancies should be offered elective CS from 34-35 weeks after a course of steroids in liaison with the Neonatal unit staff. If these patients are admitted in labour or with prelabour membrane rupture, the senior resident Obstetrician should be informed.

Quads and Higher Order Pregnancies

Delivery will be by caesarean section, exact timing will be decided by fetal medicine team in liaising with neonatal team and respecting patients' wishes.

Intrapartum care for women choosing vaginal birth

Admission

1. Labouring twins should be under the supervision of a senior midwife, but there is no reason why medical or midwifery students should be excluded from their intrapartum care.
2. The duty Obstetric Registrar should be informed of the admission.

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Labour

1. Labour should be conducted as for a singleton except that patients will often have an epidural sited, and both fetal hearts should be electronically monitored continuously, preferably with a twin-capable monitor.
2. If there is any doubt about the validity of the recording or difficulty picking up one of the twins, the patient should be scanned for viability and attempt to determine the optimal site for placing the transducer.
3. A fetal scalp electrode for twin 1 with external abdominal transducer for twin 2 may be helpful in monitoring and should be considered.
4. Intravenous access should be established and blood sent for FBC/G & S.
5. The anaesthetic registrar and neonatal SHO should be aware of the admission.
6. If gestation <37/52 NICU should be informed
7. Administer oral ranitidine 150mg 6-hourly by mouth.

Second Stage

1. Delivery must be attended by the obstetric registrar, the neonatal team. The anaesthetic registrar and operating department assistant should also be immediately available.
2. There should be clear documentation of the management of the 2nd stage.
3. Both fetal hearts should be electronically monitored continuously, preferably with a twin-capable monitor.
4. A syntocinon infusion should be made ready for use after the first twin has delivered, to be used at the discretion of the registrar (30 units syntocinon added to 500mL of 0.9% normal saline at 20 mL/hour - ie. 20 milliunits per minute).
5. Delivery of the first twin presenting by the vertex will usually be conducted by a midwife. As the first twin is being delivered it is advisable for an assistant to compress the uterus in its long axis between his or her hands, in an attempt to encourage a longitudinal lie in the second twin.
6. Delegation of the delivery of the second twin (if vertex presentation) to the midwife is at the discretion of the obstetric registrar. Ordinarily delivery of the second twin should be within 30 minutes of delivering the first twin. An ultrasound scanner should be readily available in case there is any doubt regarding the presentation of the second twin.
7. If malpresentation of the second twin present, external cephalic version or internal podalic version may be required under adequate analgesia, and the accoucheur should consider whether moving to obstetric theatres is appropriate prior to either of these procedures (Loughney et al, 2011)

Third Stage

1. There is a significant risk of PPH and syntocinon should be given following delivery of the second twin.

2. A syntocinon infusion of 30 units in 500 mL of 0.9% normal saline should be commenced immediately after the birth of the second twin, and given at a rate of 160 mL/hour (ie. 120 milli units per minute) for two hours.

Post natal care

Additional support should be made available to assist with the care of the babies.

Check FBC +/- Ferrous sulphate prescription

Post natal thrombo prophylaxis assessment; TEDS +/- low molecular weight Heparin

Clinical audits and standards

The Maternity Services are committed to the philosophy of clinical audit, as part of its Clinical Governance programme. This standards contained in this clinical guideline will be subject to continuous audit, with multidisciplinary review of the audit results at one of the monthly departmental Clinical Governance meetings. The results will also be summarised and a list of recommendations formed into an action plan, with a commitment to re-audit within three years, resources permitting.

Correct prenatal diagnosis of chorionicity greater than 95%

Down screening – 95% of women should be eligible for combined test with twin pregnancy.

Aspirin to women at risk of PET

Correct screening for anaemia followed (FBC at booking, 20-24 weeks, and 28 weeks) – 95%

Minimum schedule of ultrasound and ANC visits followed in MCDA and DCDA pregnancies – 100%

Review of suspicious TTTS by fetal medicine team within 48 hours in 100%

Detection of discordant growth

Preterm delivery rate for MCDA and DCDA twins

Planned mode of delivery documented in case records by 33 weeks – 90%

Induction of labour rate

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Outcome of trial of vaginal birth – LSCS rate, instrumental delivery rate, unanticipated admission to NICU, Cord pH < 7.1, Apgars < 7 at 5 minutes, matermal complications (OASIS, major PPH > 1.5L)

Proportion of attempted vaginal delivery requiring LSCS for twin 2 after vaginal birth of twin 1 < 10%

Outcome of planned LSCS - unanticipated admission to NICU, Cord pH < 7.1, Apgars < 7 at 5 minutes, matermal complications (major PPH > 1.5L, wound infection)

Summary of development and consultation process undertaken before registration and dissemination

The authors listed above drafted this guideline on behalf of the Obstetric Guidelines Committee, who have agreed the final content. During its development it was has been circulated for comment to members of the committee.

This version has been endorsed by the Clinical Guidelines Assessment Panel.

Distribution list/ dissemination method

Trustdocs.

References/ source documents

National Guidance Documents

NICE Clinical guideline 129: Multiple Pregnancy: management of twin & Triplet Pregnacies in the Antenatal Period. September 2011

NICE clinical guideline 62: Antenatal care March 2008 (www.nice.org.uk/guidance/CG62)

RCOG Green top guideline No 51 MANAGEMENT OF MONOCHORIONIC TWIN PREGNANCY December 2008

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