NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Guideline

Twin and triplet pregnancy

Draft for consultation, March 2019

This guideline covers the care that should be offered to women with a twin or triplet pregnancy that is additional to the routine care offered to all women during pregnancy. It aims to reduce the risk of complications and improve outcomes for women and their babies.

It should be read in conjunction with NICE's guideline on antenatal care.

Who is it for?

- Healthcare professionals
- Commissioners and providers
- Women with a twin or triplet pregnancy and their families and carers

This guideline will update NICE guideline CG129.

We have reviewed the evidence on fetal complications, including adverse events of monochorionicity (for example, twin anaemia polycythaemia sequence [TAPS]), preterm birth, timing of birth and intrapartum care in twin and triplet pregnancy. You are invited to comment on the new and updated recommendations. These are marked as **[2019]**.

You are also invited to comment on recommendations that NICE proposes to delete from the 2011 guideline.

We have not reviewed the evidence for the recommendations shaded in grey and cannot accept comments on them. In some cases, we have made minor wording changes for clarification.

See update information for a full explanation of what is being updated.

This draft guideline contains:

- the draft recommendations
- recommendations for research
- rationale and impact sections that explain why the committee made the 2019 recommendations and how they might affect practice
- the guideline context.

Information about how the guideline was developed is on the guideline's page on the NICE website. This includes the evidence reviews, the scope, and details of the committee and any declarations of interest.

Full details of the evidence and the committee's discussion on the 2019 recommendations are in the evidence reviews. Evidence for the 2011 recommendations is in the full version of the 2011 guideline.

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Contents

Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in your care.

Making decisions using NICE guidelines explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

1 Box 1 Chorionicity and amnionicity

Types of twin pregnancy	
Dichorionic diamniotic twins	Each baby has a separate placenta and amniotic sac.
Monochorionic diamniotic twins	Both babies share a placenta but have separate amniotic sacs.
Monochorionic monoamniotic twins	Both babies share a placenta and amniotic sac.
Types of triplet pregnancy	
Trichorionic triamniotic triplets	Each baby has a separate placenta and amniotic sac.
Dichorionic triamniotic triplets	One baby has a separate placenta and 2 of the babies share a placenta. All 3 babies have separate amniotic sacs.
Dichorionic diamniotic triplets	One baby has a separate placenta and amniotic sac and 2 of the babies share a placenta and amniotic sac.
Monochorionic diamniotic triplets	All 3 babies share 1 placenta. One baby has a separate amniotic sac and 2 babies share 1 sac.
Monochorionic triamniotic triplets	All 3 babies share 1 placenta but each has its own amniotic sac.
Monochorionic monoamniotic triplets	All 3 babies share a placenta and amniotic sac.

1.1 Determining gestational age and chorionicity

Gestational age

1.1.1 Offer women with a twin or triplet pregnancy a first trimester ultrasound scan when crown–rump length measures from 45 mm to 84 mm (at approximately 11^{+0} weeks to 13^{+6} weeks) to estimate gestational age, determine chorionicity and amnionicity, and screen for chromosomal abnormalities (ideally, these should all be performed at the same scan; see recommendations 1.1.3 and 1.1.4)[1]. **[2011, amended 2019]**

1.1.2 Estimate gestational age from the largest baby in a twin or triplet pregnancy to avoid the risk of estimating it from a baby with early growth pathology. **[2011]**

Chorionicity and amnionicity

1.1.3 Determine chorionicity and amnionicity at the time of detecting a twin or triplet pregnancy by ultrasound using:

- the number of placental masses
- the presence of amniotic membrane(s) and membrane thickness
- the lambda or T-sign. **[2011, amended 2019]**

1.1.4 Assign nomenclature to babies (for example, upper and lower, or left and right) in a twin or triplet pregnancy, and document this clearly in the woman's notes to ensure consistency throughout pregnancy. **[2011]**

1.1.5 If a woman with a twin or triplet pregnancy presents after 14^{+0} weeks, determine chorionicity and amnionicity at the earliest opportunity by ultrasound using all of the following:

- the number of placental masses
- the presence of amniotic membrane(s) and membrane thickness
- the lambda or T-sign

[1] Antenatal care for uncomplicated pregnancies (NICE guideline CG62) recommends determining gestational age from 10^{+0} weeks. However, the aim of this recommendation is to keep to a minimum the number of scan appointments that women need to attend within a short time, especially if it is already known that a woman has a twin or triplet pregnancy.

- discordant fetal sex. **[2011, amended 2019]**

1.1.6 If it is not possible to determine chorionicity or amnionicity by ultrasound at the time of detecting the twin or triplet pregnancy, seek a second opinion from a senior sonographer or refer the woman to a healthcare professional who is competent in determining chorionicity and amnionicity by ultrasound scan as soon as possible. **[2011, amended 2019]**

1.1.7 If it is difficult to determine chorionicity, even after referral (for example, because the woman has booked late in pregnancy), manage the pregnancy as a monochorionic pregnancy until proved otherwise. **[2011]**

1.1.8 Provide regular training so that sonographers can identify the lambda or T-sign accurately and confidently. Less experienced sonographers should have support from senior colleagues. **[2011]**

1.1.9 Training should cover ultrasound scan measurements needed for women who book after 14^{+0} weeks and should emphasise that the risks associated with twin and triplet pregnancy are determined by chorionicity and not zygosity. **[2011]**

1.1.10 Conduct regular clinical audits to evaluate the accuracy of determining chorionicity and amnionicity. **[2011, amended 2019]**

1.1.11 If transabdominal ultrasound scan views are poor because of a retroverted uterus or a high BMI, use a transvaginal ultrasound scan to determine chorionicity and amnionicity. **[2011, amended 2019]**

1.1.12 Do not use three-dimensional (3-D) ultrasound scans to determine chorionicity and amnionicity. **[2011, amended 2019]**

1.1.13 Networks should agree care pathways for managing all twin and triplet pregnancies to ensure that each woman has a care plan in place that is appropriate for the chorionicity and amnionicity of her pregnancy. **[2011, amended 2019]**

1.2 General care

Information and emotional support

1.2.1 Explain sensitively the aims and possible outcomes of all screening and diagnostic tests to women with a twin or triplet pregnancy to minimise their anxiety. **[2011]**

Diet, lifestyle and nutritional supplements

1.2.2 Give women with a twin or triplet pregnancy the same advice about diet, lifestyle and nutritional supplements as in routine antenatal care (see NICE's guideline on antenatal care for uncomplicated pregnancies). **[2011]**

1.2.3 Be aware of the higher incidence of anaemia in women with a twin or triplet pregnancy compared with women with a singleton pregnancy. **[2011]**

1.2.4 Perform a full blood count at 20–24 weeks to identify women with a twin or triplet pregnancy who need early supplementation with iron or folic acid (this is in addition to the test for anaemia at the routine booking appointment recommended in antenatal care for uncomplicated pregnancies). Repeat at 28 weeks as in routine antenatal care. **[2011]**

1.3 Specialist care

1.3.1 Clinical care for women with a twin or triplet pregnancy should be provided by a nominated multidisciplinary team consisting of:

- a core team of named specialist obstetricians, specialist midwives and sonographers, all of whom have experience and knowledge of managing twin and triplet pregnancies
- an enhanced team for referrals, which should include:
  - a perinatal mental health professional
  - a women's health physiotherapist
  - an infant feeding specialist
  - a dietitian. **[2011]**

1.3.2 Members of the enhanced team should have experience and knowledge relevant to twin and triplet pregnancies. **[2011]**

1.3.3 Do not routinely refer all women with a twin or triplet pregnancy to the enhanced team but base the decision to refer on each woman's needs. **[2011]**

1.3.4 Coordinate clinical care for women with a twin or triplet pregnancy to:

- minimise the number of hospital visits
- provide care as close to the woman's home as possible
- provide continuity of care within and between hospitals and the community. **[2011]**

1.3.5 The core team should offer information and emotional support specific to twin and triplet pregnancies at their first contact with the woman and provide ongoing opportunities for further discussion and advice including:

- antenatal and postnatal mental health and wellbeing
- antenatal nutrition (see recommendation 1.2.2)
- the risks, symptoms and signs of preterm labour and the potential need for corticosteroids for fetal lung maturation (see section 1.4 on preterm birth)
- likely timing of birth (see section 1.9) and possible modes of birth (see section 1.10)
- breastfeeding
- parenting. **[2011]**

Schedule of specialist appointments

Dichorionic diamniotic twin pregnancy

1.3.6 Offer women with an uncomplicated dichorionic twin pregnancy at least 8 antenatal appointments with a healthcare professional from the core team. At least 2 of these appointments should be with the specialist obstetrician.

- Combine appointments with scans when crown–rump length measures from 45 mm to 84 mm (at approximately 11^{+0} weeks to 13^{+6} weeks) and then at estimated gestations of 20, 24, 28, 32 and 36 weeks.
- Offer additional appointments without scans at 16 and 34 weeks. **[2011]**

Monochorionic diamniotic twin pregnancy

1.3.7 Offer women with an uncomplicated monochorionic diamniotic twin pregnancy at least 11 antenatal appointments with a healthcare professional from the core team. At least 2 of these appointments should be with the specialist obstetrician.

- Combine appointments with scans when crown–rump length measures from 45 mm to 84 mm (at approximately 11^{+0} weeks to 13^{+6} weeks) and then at estimated gestations of 16, 18, 20, 22, 24, 26, 28, 30, 32 and 34 weeks. **[2011, amended 2019]**

Triamniotic triplet pregnancy (trichorionic, dichorionic or monochorionic)

1.3.8 Offer women with an uncomplicated trichorionic triamniotic triplet pregnancy at least 9 antenatal appointments with a healthcare professional from the core team. At least 2 of these appointments should be with the specialist obstetrician**.**

- Combine appointments with scans when crown–rump length measures from 45 mm to 84 mm (at approximately 11^{+0} weeks to 13^{+6} weeks) and then at estimated gestations of 20, 24, 26, 28, 30, 32 and 34 weeks.
- Offer an additional appointment without a scan at 16 weeks. **[2011, amended 2019]**

1.3.9 Offer women with a dichorionic triamniotic or monochorionic triamniotic triplet pregnancy at least 11 antenatal appointments with a healthcare professional from the core team. At least 5 of these appointments should be with the specialist obstetrician.

- Combine appointments with scans when crown–rump length measures from 45 mm to 84 mm (at approximately 11^{+0} weeks to 13^{+6} weeks) and

then at estimated gestations of 16, 18, 20, 22, 24, 26, 28, 30, 32 and 34 weeks. **[2011, amended 2019]**

Twin and triplet pregnancies with a shared amnion

1.3.10 Offer women with a twin or triplet pregnancy involving a shared amnion individualised care from a consultant in a tertiary level fetal medicine centre (see recommendation 1.7.1). **[2011]**

1.4 Fetal complications

Information about screening

1.4.1 A healthcare professional with experience of caring for women with twin and triplet pregnancies should offer information and counselling to women before and after every screening test. **[2011]**

1.4.2 Inform women with a twin or triplet pregnancy about the complexity of decisions they may need to make depending on the outcomes of screening, including different options according to the chorionicity and amnionicity of the pregnancy. **[2011, amended 2019]**

Screening for chromosomal abnormalities

1.4.3 Offer screening for chromosomal abnormalities as outlined in the National Screening Committee's (NSC) recommendations on cfDNA screening. **[2019]**

To find out why the committee made the 2019 recommendation on screening for chromosomal abnormalities and how it might affect practice, see rationale and impact.

Screening for structural abnormalities

1.4.4 Offer screening for structural abnormalities (such as cardiac abnormalities) in twin and triplet pregnancies as in routine antenatal care; see antenatal care for uncomplicated pregnancies and the NHS Fetal Anomaly Screening Programme (FASP). **[2011]**

1.4.5 Consider scheduling ultrasound scans in twin and triplet pregnancies at a slightly later gestational age than in singleton pregnancies and be aware that the scans will take longer to perform. **[2011]**

1.4.6 Allow at least 45 minutes for the anomaly scan in twin and triplet pregnancies (as recommended by FASP). **[2011, amended 2019]**

1.4.7 Allow at least 30 minutes for growth scans in twin and triplet pregnancies. **[2011, amended 2019]**

Screening for preterm birth

For recommendations on preventing preterm birth, see section 1.5.

1.4.8 Explain to women and their family members or carers (as appropriate) that:

- they have a higher risk of spontaneous preterm birth (see timing of birth) than women with a singleton pregnancy **and**
- this risk is further increased if they have had a spontaneous preterm birth in a previous pregnancy. **[2019]**

1.4.9 Do not use fetal fibronectin testing alone to predict the risk of spontaneous preterm birth in twin and triplet pregnancy. **[2019]**

1.4.10 Do not use home uterine activity monitoring to predict the risk of spontaneous preterm birth in twin and triplet pregnancy. **[2019]**

To find out why the committee made the 2019 recommendations on screening for preterm birth and how they might affect practice, see rationale and impact.

Screening for intrauterine growth restriction and feto-fetal transfusion syndrome in the first trimester

1.4.11 Do not offer women with a twin or triplet pregnancy screening for intrauterine growth restriction or feto-fetal transfusion syndrome in the first trimester. **[2019]**

To find out why the committee made this 2019 recommendation and how it might affect practice, see rationale and impact.

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

1.4.12 Do not use abdominal palpation or symphysis–fundal height measurements to monitor for intrauterine growth restriction in a dichorionic twin or trichorionic triplet pregnancy. **[2019]**

1.4.13 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 volumes. To assess amniotic fluid volume, measure the deepest vertical pocket (DVP) on either side of the amniotic membrane. **[2019]**

1.4.14 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. **[2019]**

1.4.15 Calculate and document estimated fetal weight (EFW) discordance as follows:

- dichorionic twins:
  - (EFW larger fetus – EFW smaller fetus) / EFW larger fetus
- trichorionic triplets:
  - (EFW largest fetus – EFW smallest fetus) / EFW largest fetus
  - (EFW largest fetus – EFW middle fetus) / EFW largest fetus. **[2019]**

1.4.16 Increase diagnostic monitoring in the second and third trimesters to at least weekly if there is an estimated fetal weight discordance of 20% or more. Include doppler assessment of the umbilical artery flow for each baby. **[2019]**

1.4.17 Refer women with a dichorionic twin or trichorionic triplet pregnancy to a tertiary level fetal medicine centre if there is an estimated fetal weight discordance of 25% or more because this is a clinically important indicator of selective intrauterine growth restriction. **[2019]**

> To find out why the committee made the 2019 recommendations on diagnostic monitoring for intrauterine growth restriction in dichorionic twin and trichorionic triplet pregnancies, and how they might affect practice, see rationale and impact.

Diagnostic monitoring for complications of monochorionicity in twin and triplet pregnancy

1.4.18 Offer women simultaneous monitoring for feto-fetal transfusion syndrome, intrauterine growth restriction and advanced-stage twin anaemia polycythaemia sequence (TAPS) at every ultrasound assessment to monitor effectively for all complications of monochorionicity. Explain that the relative likelihood of each complication changes with advancing gestation but that they can all occur at any gestational age. **[2019]**

Feto-fetal transfusion syndrome

1.4.19 Offer diagnostic monitoring for feto-fetal transfusion syndrome to women with a monochorionic twin or triplet pregnancy. Monitor with ultrasound every 14 days from 16 weeks until birth. **[2019]**

1.4.20 Use ultrasound assessment, with a visible amniotic membrane within the measurement image, to monitor for feto-fetal transfusion syndrome. Measure the DVP depths of amniotic fluid on either side of the amniotic membrane. **[2019]**

1.4.21 Increase the frequency of diagnostic monitoring for feto-fetal transfusion syndrome in the woman’s second and third trimester to at least weekly if there are concerns about differences between the babies' amniotic fluid volumes (a difference in DVP depth of 4 cm or more). Include doppler assessment of the umbilical artery flow for each baby. **[2019]**

1.4.22 Refer the woman to a tertiary level fetal medicine centre if feto-fetal transfusion syndrome is diagnosed, based on the following:

- the amniotic sac of 1 baby has a DVP depth of less than 2 cm **and**
- the amniotic sac of another baby has a DVP depth of:
  - over 8 cm before 20^{+0} weeks of pregnancy **or**
  - over 10 cm from 20^{+0} weeks. **[2019]**

1.4.23 Refer the woman to her named specialist obstetrician for multiple pregnancy in her second or third trimester for further assessment and monitoring if:

- the amniotic sac of 1 baby has a DVP depth in the normal range **and**
- the amniotic sac of another baby has a DVP depth of:
  - less than 2 cm **or**
  - 8 cm or more. **[2019]**

To find out why the committee made the 2019 recommendations on diagnostic monitoring for complications of monochorionicity, including feto-fetal transfusion syndrome, and how they might affect practice, see rationale and impact.

Intrauterine growth restriction in monochorionic pregnancy

1.4.24 Do not use abdominal palpation or symphysis–fundal height measurements to monitor for intrauterine growth restriction in women with a monochorionic twin or triplet pregnancy. **[2019]**

1.4.25 At each ultrasound scan from 16 weeks, offer women with a monochorionic twin or triplet pregnancy diagnostic monitoring for fetal weight discordance using 2 or more biometric parameters (in addition to amniotic fluid volume assessment; see recommendation 1.4.16). Continue monitoring at intervals that should not exceed 14 days. **[2019]**

1.4.26 Calculate and document estimated fetal weight (EFW) discordance in monochorionic twins as follows:

- (EFW larger fetus – EFW smaller fetus) / EFW larger fetus. **[2019]**

1.4.27 The named specialist obstetrician should review the estimated fetal weights of dichorionic and monochorionic triplets and calculate the estimated fetal weight discordance based on their understanding of the implications of chorionicity. **[2019]**

1.4.28 Increase diagnostic monitoring in the second and third trimesters to at least weekly if there are concerns about differences between the babies in estimated fetal weight of more than 20%. Include doppler assessment of the umbilical artery flow for each baby. **[2019]**

1.4.29 Refer women with a monochorionic pregnancy to a tertiary level fetal medicine centre if a 25% or greater difference in estimated fetal weight is measured between twins or triplets because this is a clinically important indicator of selective intrauterine growth restriction. **[2019]**

To find out why the committee made the 2019 recommendations on diagnostic monitoring for intrauterine growth restriction in monochorionic pregnancy and how they might affect practice, see rationale and impact.

Twin anaemia polycythaemia sequence

1.4.30 Offer weekly ultrasound monitoring for twin anaemia polycythaemia sequence (TAPS) from 16 weeks of pregnancy using middle cerebral artery peak systolic velocity (MCA-PSV) to women whose pregnancies are complicated by:

- feto-fetal transfusion syndrome that has been treated by fetoscopic laser therapy **or**
- selective intrauterine growth restriction (as defined by a difference in estimated fetal weight of 25% or more). **[2019]**

1.4.31 For women with a monochorionic pregnancy showing any of the following:

- cardiovascular compromise (such as fetal hydrops or cardiomegaly) **or**
- unexplained isolated polyhydramnios **or**
- abnormal umbilical artery **or**

- abnormal ductus venosus doppler

perform ultrasound MCA-PSV measurements to help detect advanced-stage TAPS, and seek management advice immediately from a tertiary level fetal medicine specialist. **[2019]**

To find out why the committee made the 2019 recommendations on diagnostic monitoring for TAPS and how they might affect practice, see rationale and impact.

1.5 Preventing preterm birth

1.5.1 Do not offer intramuscular progesterone to prevent spontaneous preterm birth in women with a twin or triplet pregnancy. **[2019]**

1.5.2 Do not offer the following interventions (alone or in combination) routinely to prevent spontaneous preterm birth in women with a twin or triplet pregnancy:

- arabin pessary
- bed rest
- cervical cerclage
- oral tocolytics. **[2019]**

To find out why the committee made the 2019 recommendations on preventing preterm birth and how they might affect practice, see rationale and impact.

Corticosteroids

1.5.3 Inform women with a twin or triplet pregnancy of their increased risk of preterm birth (see recommendation 1.4.8) and about the benefits of targeted corticosteroids. **[2011]**

1.5.4 Do not use single or multiple untargeted (routine) courses of corticosteroids in twin or triplet pregnancy. Inform women that there is no benefit in using untargeted administration of corticosteroids. **[2011]**

1.6 Maternal complications

Hypertension

1.6.1 Measure blood pressure and test urine for proteinuria to screen for hypertensive disorders at each antenatal appointment in a twin and triplet pregnancy in line with NICE's guideline on antenatal care for uncomplicated pregnancies. **[2011]**

1.6.2 Advise women with a twin or triplet pregnancy to take low-dose aspirin[2] daily from 12 weeks until the birth of the babies if they have 2 or more of the risk factors specified in NICE's guideline on hypertension in pregnancy. **[2011, amended 2019]**

1.7 Indications for referral to a tertiary level fetal medicine centre

1.7.1 Seek a consultant opinion from a tertiary level fetal medicine centre for:

- pregnancies with a shared amnion:
  - monochorionic monoamniotic twins
  - dichorionic diamniotic triplets
  - monochorionic diamniotic triplets
  - monochorionic monoamniotic triplets
- pregnancies complicated by any of the following:
  - fetal weight discordance (of 25% or more)
  - fetal anomaly (structural or chromosomal)
  - discordant fetal death
  - feto-fetal transfusion syndrome
  - twin reverse arterial perfusion sequence (TRAP)
  - conjoined twins or triplets

[2] At the time of consultation (March 2019), aspirin did not have a UK marketing authorisation for this indication. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the General Medical Council's Prescribing guidance: prescribing unlicensed medicines for further information.

- suspected twin anaemia polycythaemia sequence (see recommendations 1.4.30 and 1.4.31). **[2011, amended 2019]**

1.8 Planning birth: information and support

1.8.1 From 24 weeks in a twin or triplet pregnancy, discuss with the woman (and her family members or carers, as appropriate) her plans and wishes for the birth of her babies. Provide information that is tailored to each woman's pregnancy, taking into account her needs and preferences. Revisit these conversations whenever clinically indicated and whenever the woman wants to. **[2019]**

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

- 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. **[2019]**

1.8.3 Follow NICE's guideline on patient experience in adult NHS services for how to provide information and communicate with women and their families and carers. **[2019]**

To find out why the committee made the 2019 recommendations on planning birth and how they might affect practice, see rationale and impact.

1.9 Timing of birth

1.9.1 Explain to women with a twin pregnancy that about 60 in 100 twin pregnancies result in spontaneous birth before 37 weeks. **[2019]**

1.9.2 Explain to women with a triplet pregnancy that about 75 in 100 triplet pregnancies result in spontaneous birth before 35 weeks. **[2019]**

1.9.3 Explain to women with a twin or triplet pregnancy that spontaneous preterm birth and planned preterm birth are associated with an increased risk of admission to a neonatal unit. **[2019]**

1.9.4 Explain to women with an uncomplicated dichorionic diamniotic twin pregnancy that:

- planned birth from 37^{+0} weeks does not appear to be associated with an increased risk of serious neonatal adverse outcomes **and**
- continuing the pregnancy beyond 37^{+6} weeks increases the risk of fetal death. **[2019]**

1.9.5 Explain to women with an uncomplicated monochorionic diamniotic twin pregnancy that:

- planned birth from 36^{+0} weeks does not appear to be associated with an increased risk of serious neonatal adverse outcomes **and**
- continuing the pregnancy beyond 36^{+6} weeks increases the risk of fetal death. **[2019]**

1.9.6 Explain to women with an uncomplicated monochorionic monoamniotic twin pregnancy that planned birth between 32^{+0} and 33^{+6} weeks does not appear to be associated with an increased risk of serious neonatal adverse outcomes. Also explain that:

- these babies will usually need to be admitted to the neonatal unit and have an increased risk of respiratory problems
- continuing the pregnancy beyond 33^{+6} weeks increases the risk of fetal death. **[2019]**

1.9.7 Explain to women with an uncomplicated trichorionic triamniotic or dichorionic triamniotic triplet pregnancy that continuing the pregnancy beyond 35^{+6} weeks increases the risk of fetal death. **[2019]**

1.9.8 Explain to women with a monochorionic triamniotic triplet pregnancy or a triplet pregnancy that involves a shared amnion that the timing of birth will be decided and discussed with each woman individually. **[2019]**

When to offer planned birth

1.9.9 Offer planned birth at 37 weeks to women with an uncomplicated dichorionic diamniotic twin pregnancy. **[2019]**

1.9.10 Offer planned birth as follows, after a course of antenatal corticosteroids has been offered:

- at 36 weeks for women with an uncomplicated monochorionic diamniotic twin pregnancy
- between 32^{+0} and 33^{+6} weeks for women with an uncomplicated monochorionic monoamniotic twin pregnancy
- at 35 weeks for women with an uncomplicated trichorionic triamniotic or dichorionic triamniotic triplet pregnancy. **[2019]**

1.9.11 Offer women with any complicated twin or triplet pregnancy an individual assessment to determine the timing of planned birth. **[2019]**

1.9.12 For women who decline planned birth at the timing recommended in recommendations 1.9.9 and 1.9.10, offer weekly appointments with the specialist obstetrician. At each appointment, offer an ultrasound scan and perform assessments of amniotic fluid volumes and doppler of the umbilical artery flow for each baby in addition to fortnightly fetal growth scans. **[2019]**

To find out why the committee made the 2019 recommendations on timing of birth and how they might affect practice, see rationale and impact.

1.10 Mode of birth

Twin pregnancy: dichorionic diamniotic or monochorionic diamniotic

1.10.1 Explain to women with an uncomplicated twin pregnancy planning their mode of birth that planned vaginal birth and planned caesarean section are both safe choices for them and their babies if all of the following apply:

- the pregnancy remains uncomplicated and has progressed beyond 32 weeks

- there are no obstetric contraindications to labour
- the first baby is in a cephalic (head first) presentation
- there is no significant size discordance between the twins. **[2019]**

1.10.2 Explain to women with an uncomplicated twin pregnancy that for women giving birth after 32 weeks (see recommendation 1.10.1):

- more than a third of women who plan a vaginal birth go on to have a caesarean section
- almost all women who plan a caesarean section do have one, but a few women have a vaginal birth before caesarean section can be carried out
- a small number of women who plan a vaginal birth will need an emergency caesarean section to deliver the second twin after vaginal birth of the first twin. **[2019]**

1.10.3 Offer caesarean section to women if the first twin is not cephalic at the time of planned birth. **[2019]**

1.10.4 Offer caesarean section to women in established preterm labour between 26 and 32 weeks if the first twin is not cephalic. **[2019]**

1.10.5 Offer an individualised assessment of mode of birth to women in suspected, diagnosed or established preterm labour before 26 weeks. Take into account the risks of caesarean section (see the NICE guideline on preterm labour and birth) and the chance of survival of the babies. **[2019]**

Twin pregnancy: monochorionic monoamniotic

1.10.6 Offer a caesarean section to women with a monochorionic monoamniotic twin pregnancy:

- at the time of planned birth (between 32^{+0} and 33^{+6} weeks) **or**
- after any complication is diagnosed in her pregnancy requiring earlier delivery **or**

- if she is in established preterm labour, and gestational age suggests there is a reasonable chance of survival of the babies. **[2019]**

Triplet pregnancy

1.10.7 Offer a caesarean section to women with a triplet pregnancy:

- at the time of planned birth (35 weeks) **or**
- after any complication is diagnosed in her pregnancy requiring earlier delivery **or**
- if she is in established preterm labour, and gestational age suggests there is a reasonable chance of survival of the babies. **[2019]**

To find out why the committee made the 2019 recommendations on mode of birth and how they might affect practice, see rationale and impact.

1.11 Fetal monitoring during labour in twin pregnancy

Antenatal information for women

1.11.1 By 28 weeks of pregnancy, discuss continuous cardiotocography with women 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 with a singleton pregnancy because there is a lack of evidence specific to twin pregnancy or preterm babies. **[2019]**

1.11.2 Explain to the woman that continuous cardiotocography is used to monitor the babies' heartbeats and her labour contractions, and that:

- it allows simultaneous monitoring of both babies
- it might restrict her mobility
- normal traces show the babies are coping well with labour; if traces are not normal, there will be less certainty about the babies' condition
- it is normal to see changes to the fetal heart rate pattern during labour and this does not necessarily mean there is a problem

- findings from the cardiotocograph are used to help make decisions during labour and birth, but these will also be based on her wishes, her condition and that of her babies. **[2019]**

Intrapartum monitoring

1.11.3 Offer continuous cardiotocography to women with a twin pregnancy who are in established labour and are more than 26 weeks pregnant. **[2019]**

1.11.4 Perform a portable ultrasound scan when established labour starts, to confirm the presentation and locate the fetal hearts. **[2019]**

1.11.5 Do not offer intermittent auscultation to women with a twin pregnancy who are in established labour and are more than 26 weeks pregnant. **[2019]**

1.11.6 For women between 23^{+0} and 25^{+6} weeks of pregnancy who are in established labour, involve a senior obstetrician in discussions with the woman and her family members or carers about how to monitor the fetal heart rates. **[2019]**

1.11.7 When carrying out cardiotocography:

- use dual channel cardiotocography monitors to allow simultaneous monitoring of both fetal hearts
- 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. **[2019]**

1.11.8 Consider separating the fetal heart rates by 20 beats/minute if there is difficulty differentiating between them. **[2019]**

1.11.9 Classify and interpret cardiotocography in line with the NICE guideline on intrapartum care for healthy women and babies (see table 10), taking 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 following a cardiotocography trace that is categorised as 'pathological'. **[2019]**

Reviewing cardiotocography

1.11.10 Carry out systematic assessments of both cardiotocographs at least hourly, and more frequently if there are concerns. **[2019]**

1.11.11 At each systematic assessment, document which cardiotocography trace belongs to which baby. **[2019]**

1.11.12 Be aware of the possibility of monitoring the same baby twice. At each cardiotocography review, ensure that twin synchronicity is not occurring. **[2019]**

Management based on cardiotocography

1.11.13 If abdominal monitoring is unsuccessful or there are concerns about synchronicity of the fetal hearts:

- apply a fetal scalp electrode to the first baby (only after 34 weeks and if there are no contraindications) while continuing abdominal monitoring of the second baby
- perform a bedside ultrasound scan to find and confirm both fetal heart rates
- if monitoring remains unsatisfactory, consider a caesarean section. **[2019]**

1.11.14 If the cardiotocograph trace is categorised as 'suspicious' (see table 11 in the NICE guideline on intrapartum care for healthy women and babies) in the first baby during established labour:

- involve the senior obstetrician and senior midwife
- correct any reversible causes

- apply a fetal scalp electrode to the first baby (only after 34 weeks and if there are no contraindications) while continuing abdominal monitoring of the second baby. **[2019]**

1.11.15 If the cardiotocograph trace is categorised as 'pathological' (see table 11 in the NICE guideline on intrapartum care for healthy women and babies) in the first baby during the first stage of labour:

- involve the senior obstetrician and senior midwife
- discuss with the woman and her family members or carers the possible use of fetal blood sampling of the first baby from 34 weeks if the benefits are likely to outweigh the potential risks. **[2019]**

1.11.16 When offering fetal blood sampling in twin pregnancy, discuss with the woman and her family members or carers that if a blood sample cannot be obtained then she is likely to need a caesarean section. **[2019]**

1.11.17 If the results of fetal blood sampling are not available within 20 minutes or fetal blood sampling is contraindicated, offer an immediate caesarean section to women with a twin pregnancy. **[2019]**

1.11.18 If the cardiotocograph trace is categorised as ‘pathological’ (see table 11 in the NICE guideline on intrapartum care for healthy women and babies) in the first baby during the second stage of labour:

- involve the senior obstetrician and senior midwife
- assess whether an assisted vaginal birth is an option
- if vaginal birth is not an option or cannot be achieved within 20 minutes, offer an immediate caesarean section. **[2019]**

1.11.19 If the cardiotocograph trace of the second baby is categorised as 'suspicious’ or ‘pathological’ (see table 11 in the NICE guideline on intrapartum care for healthy women and babies) during established labour before the first baby is born:

- involve the senior obstetrician and senior midwife

- if vaginal birth of the second baby cannot be achieved within 20 minutes, discuss performing a caesarean section with the woman and her family members or carers. **[2019]**

1.11.20 After the birth of the first baby:

- continue to monitor the second baby using cardiotocography
- if there is 'suspicious' or 'pathological' cardiotocography, and vaginal birth cannot be achieved within 20 minutes, discuss performing a caesarean section with the woman and her family members or carers. **[2019]**

1.11.21 After the birth of both babies, consider double clamping the cord to allow umbilical cord blood gases to be sampled. Ensure that the samples are correctly labelled for each baby. **[2019]**

To find out why the committee made the 2019 recommendations on fetal monitoring during labour and how they might affect practice, see rationale and impact.

1.12 Analgesia

1.12.1 Discuss options for analgesia and anaesthesia with women (and their family members or carers), whether they are planning a vaginal birth or caesarean section. Ensure this discussion takes place by:

- 28 weeks for women with a twin pregnancy
- 24 weeks for women with a triplet pregnancy. **[2019]**

1.12.2 Offer an epidural to women with a twin or triplet pregnancy who choose to have a vaginal birth. Explain that this is likely to:

- improve the chance of success and optimal timing of assisted vaginal birth of all the babies
- enable a quicker birth by emergency caesarean section if needed. **[2019]**

1.12.3 Offer regional anaesthesia to women with a twin or triplet pregnancy who are having a caesarean section. **[2019]**

To find out why the committee made the 2019 recommendations on analgesia during labour and birth and how they might affect practice, see rationale and impact.

1.13 Managing the third stage of labour

Assessing risk

1.13.1 Start assessing the risk of postpartum haemorrhage in women with a twin or triplet pregnancy in the antenatal period and continue throughout labour and the third stage (see the section on risk factors for postpartum haemorrhage in NICE's guideline on intrapartum care for healthy women and babies). **[2019]**

1.13.2 Offer each woman an individualised assessment of her risk of postpartum haemorrhage and explain that multiple pregnancy is a risk factor for increased blood loss at delivery. **[2019]**

Management

1.13.3 By 28 weeks of pregnancy, discuss options for managing the third stage of labour with women with a twin or triplet pregnancy. **[2019]**

1.13.4 Do not offer physiological management of the third stage to women with a twin or triplet pregnancy. **[2019]**

1.13.5 Offer women with a twin or triplet pregnancy active management of the third stage. Explain that it is associated with a lower risk of postpartum haemorrhage and/or blood transfusion. **[2019]**

1.13.6 Consider active management of the third stage with additional uterotonics for women who have 1 or more risk factors (in addition to a twin or triplet pregnancy) for postpartum haemorrhage. **[2019]**

Blood transfusion

1.13.7 By 28 weeks of pregnancy, discuss with women with a twin or triplet pregnancy the potential need for blood transfusion, including the need for intravenous access. Document this discussion in the woman's notes. **[2019]**

1.13.8 At the start of established labour in women with a twin or triplet pregnancy:

- Ensure that intravenous access is available so that prompt blood transfusion and intravenous fluids can be given if needed.
- Take a maternal blood sample for a full blood count and group and save. **[2019]**

1.13.9 Ensure that the appropriate blood transfusion is available for urgent administration. **[2019]**

To find out why the committee made the 2019 recommendations on managing the third stage of labour and how they might affect practice, see rationale and impact.

Terms used in this guideline

Active management of the third stage

In a vaginal birth, active management consists of 10 IU of oxytocin by intramuscular injection immediately after the birth of the last baby and before the cord is clamped and cut. In a caesarean section, it consists of 5 IU of oxytocin by intravenous injection immediately after the birth of the last baby and before the cord is clamped and cut.

Amnionicity

The number of amnions (inner membranes) that surround babies in a multiple pregnancy. Pregnancies with 1 amnion (so that all babies share an amniotic sac) are described as monoamniotic; pregnancies with 2 amnions are diamniotic; and pregnancies with 3 amnions are triamniotic. Also see box 1.

Chorionicity

The number of chorionic (outer) membranes that surround babies in a multiple pregnancy. If there is only 1 membrane, the pregnancy is described as monochorionic; if there are 2, the pregnancy is dichorionic; and if there are 3, the pregnancy is trichorionic. Monochorionic twin pregnancies and dichorionic triplet pregnancies carry higher risks because babies share a placenta. Also see box 1.

Feto-fetal transfusion syndrome

Feto-fetal transfusion syndrome occurs when blood moves from one baby to another. The baby that loses the blood is called the donor and the baby receiving the blood is called the recipient. Feto-fetal transfusion syndrome is a complication of monochorionic multiple pregnancies arising from shared placental circulation. It is also referred to as twin-to-twin transfusion syndrome in twin pregnancies.

Group and save

This is a blood sampling process. It consists of a blood group and an antibody screen to determine the woman's blood group and whether she has atypical red cell antibodies in her blood. If atypical antibodies are present, the laboratory will do additional work to identify them. This will allow blood to be issued in an emergency very quickly.

Specialist obstetrician

An obstetrician with a special interest, experience and knowledge of managing multiple pregnancy, and who works regularly with women with a multiple pregnancy.

Tertiary level fetal medicine centre

A regionally commissioned centre with the experience and expertise for managing complicated twin and triplet pregnancies.

Twin anaemia polycythaemia sequences

Twin anaemia-polycythaemia sequence (TAPS), is a complication affecting monochorionic twin or triplet pregnancies. It is a rare, chronic form of feto-fetal transfusion caused by the joining of fine blood vessels connecting the fetal circulations on the placenta. It presents when there are unequal blood counts between the twins in the womb. When TAPS occurs, the recipient twin is at risk for

successively increasing blood count, called polycythaemia, and the donor twin for progressive blood loss, or anaemia. TAPS occurs without the differences in levels of amniotic fluids between the fetuses (polyhydramnios-oligohydramnios) that is usually seen in FFTS.

Recommendations for research

The guideline committee has made the following recommendations for research. Research recommendations labelled **[2011]** related to topics that were not updated and therefore were kept in the guideline (summarised below; see the 2011 full guideline for more details). The committee removed 6 of the 2011 recommendations on screening for chromosomal abnormalities, screening for feto-fetal transfusion syndrome, defining intrauterine growth restriction, predicting and preventing spontaneous preterm birth, and perinatal and neonatal morbidity and mortality in babies born by elective birth (see table 1).

As part of the 2019 update, the guideline committee made an additional research recommendation on the identification on twin anaemia polycythaemia sequence (TAPS).

Recommendations for research

1 Screening to detect twin anaemia polycythaemia sequence

What is the most accurate prenatal screening marker for TAPS, including middle cerebral artery peak systolic velocity (MCA-PSV)? **[2019]**

To find out why the committee made the research recommendation on TAPS, see rationale and impact.

2 Gestational age

How should gestational age be estimated in twin and triplet pregnancies? **[2011]**

3 Chorionicity

What is the most accurate method of determining chorionicity in twin and triplet pregnancies at different gestational ages, and how does operator experience affect the accuracy of different methods? **[2011]**

4 Information and support

Does additional information and emotional support improve outcomes in twin and triplet pregnancies? **[2011]**

5 Nutritional supplements

Is dietary supplementation with vitamins or minerals, or dietary manipulation in terms of calorie intake, effective in twin and triplet pregnancies? **[2011]**

6 Diet and lifestyle advice

Is dietary advice specific to twin and triplet pregnancies effective in improving maternal and fetal health and wellbeing? **[2011]**

7 Specialist care

Does specialist antenatal care for women with twin and triplet pregnancies improve outcomes for women and their babies? **[2011]**

8 Screening for structural abnormalities

When and how should screening for structural abnormalities be conducted in twin and triplet pregnancies? **[2011]**

9 Hypertension

Which clinical factors, laboratory screening tests, and ultrasound tests are predictive of hypertensive disorders in twin and triplet pregnancies? **[2011]**

10 Untargeted corticosteroids

What is the clinical and cost effectiveness, and safety, of routine antenatal administration of a single course of corticosteroids for women with twin and triplet pregnancies who are not in labour and in whom labour and birth are not imminent? **[2011]**

11 Indications for referral to a tertiary level fetal medicine centre

What is the incidence of monochorionic monoamniotic twin and triplet pregnancies, and what clinical management strategies are most effective in such pregnancies? **[2011]**

What is the clinical and cost effectiveness of referral to tertiary level fetal medicine centres for twin and triplet pregnancies complicated by discordant fetal growth, discordant fetal anomaly or discordant fetal death? **[2011]**

Rationale and impact

These sections briefly explain why the committee made the recommendations and how they might affect practice. They link to details of the evidence and a full description of the committee's discussion.

Screening for chromosomal abnormalities

Recommendation 1.4.3

Why the committee made the recommendation

Since the 2011 guideline, the National Screening Committee's recommendations on cfDNA screening for fetal anomalies have been published and implemented. These apply to women with both singleton and multiple pregnancies, so the 2011 recommendations were replaced by a cross reference to this screening programme.

How the recommendation might affect practice

The recommendation reinforces current best practice.

Return to recommendations

Screening for preterm birth

Recommendations 1.4.8 to 1.4.10

Why the committee made the recommendations

The committee agreed, based on their experience and expertise, that women should be given information about the risks of preterm birth and that this should be part of discussions about screening for preterm birth.

The committee retained the existing 2011 recommendations that fetal fibronectin testing and home uterine activity monitoring should not be used to predict the risk of spontaneous preterm birth because there was still no evidence suggesting they were accurate.

Cervical length screening in twin pregnancy

The evidence suggested that cervical length is a moderate predictor of spontaneous preterm birth in twin pregnancy. Although there were some inconsistencies between studies, the committee agreed they still supported the use of cervical length measurements to predict preterm birth in twin pregnancy. Establishing that a woman is at risk of preterm birth allows an intervention to be offered, and there is some evidence that vaginal progesterone may reduce this risk in women with a twin pregnancy. However, the committee was also aware that new evidence would be emerging about the use of vaginal progesterone in subgroups of women with a short cervix that could change their conclusions about its effectiveness. This uncertainty meant the committee could not recommend vaginal progesterone to prevent preterm birth. Because of this, the committee also decided they could not recommend cervical length screening in the absence of an effective intervention to offer women with a higher risk of preterm birth.

How the recommendations might affect practice

The recommendations reinforce current best practice.

Full details of the evidence and the committee's discussion are in evidence review B1: screening for spontaneous preterm birth.

Return to recommendations

Screening for intrauterine growth restriction and feto-fetal transfusion syndrome in the first trimester

Recommendation 1.4.11.

Why the committee made the recommendation

Intrauterine growth restriction

There was evidence that discordance in either crown–rump length or nuchal translucency during the first trimester is not an accurate predictor of growth discordance in the second and third trimester. The committee discussed the evidence for other ultrasound screening measures in the first trimester and decided

that because of its low quality they were not confident in recommending any screening tests in the first trimester.

Feto-fetal transfusion syndrome

The evidence showed that none of the first trimester screening tests were able to detect the risk of feto-fetal transfusion syndrome developing later in the pregnancy. Although there were uncertainties in this evidence, it was supported by the committee's clinical experience and current clinical practice.

How the recommendations might affect practice

The recommendations reinforce current practice.

Full details of the evidence and the committee's discussion are in evidence review A1: screening for feto-fetal transfusion syndrome and evidence review A2: screening for intrauterine growth restriction.

Return to recommendations

Diagnostic monitoring for intrauterine growth restriction

Recommendations 1.4.12 to 1.4.17 and 1.4.24 to 1.4.29

Why the committee made the recommendations

Based on evidence which showed that abdominal palpation and symphysis–fundal height were not accurate measurements to diagnose intrauterine growth restriction, the committee recommended that these should not be used.

Intrauterine growth restriction is associated with perinatal mortality, morbidity and preterm birth. The committee agreed that monitoring using ultrasound scanning is essential to identify women in this high-risk group.

Frequency of ultrasound scanning

The evidence was limited on the frequency of ultrasound scanning for women with monochorionic and dichorionic pregnancies, so the committee used their own expertise to make recommendations. They agreed that women with a dichorionic twin pregnancy should have scans no more than 28 days apart (recommendation 1.4.14), and that women with a monochorionic twin pregnancy need more frequent

scans because these pregnancies have a higher risk of severe growth discordance (recommendation 1.4.25).

Scanning at no more than 14-day intervals would allow the woman to be referred promptly either to her specialist obstetrician for multiple pregnancy (if there is a difference in estimated fetal weight [EFW] of more than 20%), or to a tertiary level fetal medicine centre (for a difference in EFW of 25% or more). The committee also agreed that because women with a monochorionic pregnancy should be having scans at 14-day intervals to monitor for feto-fetal transfusion syndrome, these timings mean they can be monitored for both of these complications at the same time (in line with recommendation 1.4.18).

The committee also recommended ultrasound monitoring at least every 14 days for women with all types of triplet pregnancy (recommendations 1.4.14 and 1.4.19) because they are at higher risk of intrauterine growth restriction.

Fetal weight discordance: diagnostic monitoring and referral

Based on both the evidence and their expertise, the committee recommended using at least 2 different biometric parameters as well as amniotic fluid volume assessment to provide greater accuracy in calculating estimated fetal weight.

The Royal College of Obstetricians and Gynaecologists' Green Top guideline on monochorionic twin pregnancy recommends referring women 'for assessment and management in fetal medicine units with recognised relevant expertise' if there is an estimated fetal weight discordance of more than 20%. The committee agreed with the Green Top guideline that this level should cause concern and prompt increased monitoring, but they recommended instead increasing to weekly monitoring and adding the extra parameter of a doppler assessment. This would be equivalent to the specialist assessment recommended by the Green Top guideline because it would need to be carried out by the specialist core team (in line with recommendation 1.3.1) who have experience and knowledge of managing twin and triplet pregnancies. The committee agreed that this would not be inconsistent with the Green Top guideline.

The evidence was inconclusive about an exact cut-off for referral to a tertiary level fetal medicine centre, so based on their own experience the committee decided that

an estimated fetal weight discordance of 25% or greater should warrant referral. At this level of discordance, there would be an increased risk of perinatal morbidity and mortality that should prompt intervention rather than increased assessment. The tertiary level fetal medicine centre would have the expertise to weigh up the benefits and risks of conservative management, birth or invasive intrauterine therapy (in monochorionic pregnancies) to try to improve the chance of a positive pregnancy outcome.

How the recommendations might affect practice

These recommendations are largely reinforcing current practice in twin pregnancy and should have a minimal impact on local ultrasound resourcing. They are consistent with other national and international guidance.

The recommendation to monitor all women with a triplet pregnancy at no more than 14-day intervals (irrespective of chorionicity) is a change in practice, particularly for women with a trichorionic triamniotic pregnancy. For these women, previous recommendations suggested 4-weekly scans. However, the change is justified because all types of triplet pregnancy are at high risk of intrauterine growth restriction. The recommendation should not have a significant impact on clinical resources because of the low number of women with a triplet pregnancy.

Full details of the evidence and the committee's discussion are in evidence review A2: screening for intrauterine growth restriction.

Return to recommendations

Diagnostic monitoring for feto-fetal transfusion syndrome

Recommendations 1.4.18 to 1.4.23

Why the committee made the recommendations

The committee agreed that feto-fetal transfusion syndrome is difficult to detect using amniotic fluid discordance before 16 weeks of pregnancy. After this stage, amniotic fluid volumes have increased and differences between them can be used to diagnose feto-fetal transfusion syndrome. Monitoring fortnightly from 16 weeks should ensure that feto-fetal transfusion syndrome is diagnosed as early as possible.

The committee decided based on their expertise – and on limited evidence from studies that conducted diagnostic scans after 24 weeks – that continuing fortnightly monitoring until birth would improve outcomes for women who develop feto-fetal transfusion syndrome later in pregnancy (although it is less common after 26 weeks).

To support this frequency of monitoring, the committee also increased the number of reviews by the specialist obstetrician from at least 2 (in the 2011 guideline) to at least 5 for dichorionic and monochorionic triamniotic triplet pregnancies (recommendation 1.3.4). Dichorionic triamniotic triplets have an increased risk of adverse outcomes compared with monochorionic diamniotic twins if feto-fetal transfusion occurs. The risk of complications of monochorionicity, and of adverse outcomes if complications occur, is higher in triplets than in twins. More frequent review by the specialist obstetrician would ensure optimal critical assessment of ultrasound findings (including findings related to feto-fetal transfusion syndrome) and any need for more frequent monitoring.

The committee agreed that making sure the amniotic membrane is visible in the scan reduces the chance of measuring the same sac twice in error and improves accuracy in identifying a difference between the babies' amniotic fluid volumes (recommendation 1.4.20).

Based on their knowledge and experience, the committee agreed that women should be referred immediately to a tertiary level fetal medicine centre when differences in amniotic fluid volume meet the criteria for diagnosing feto-fetal transfusion syndrome. The clinical course of feto-fetal transfusion syndrome can be unpredictable so this would allow prompt assessment and early intervention. They also agreed that when differences in amniotic fluid volume are measured that do not yet meet the threshold for feto-fetal transfusion syndrome (recommendation 1.4.23), women should be seen by their named specialist obstetrician for multiple pregnancy and offered more frequent monitoring, using doppler assessment to help detect feto-fetal transfusion syndrome as early as possible.

How the recommendations might affect practice

Monitoring for feto-fetal transfusion syndrome from 16 weeks of pregnancy until birth is a change to current practice, in which monitoring is only carried out until week 24.

Early detection would enable prompt management, and this would outweigh the cost of additional ultrasound.

Full details of the evidence and the committee's discussion are in evidence review A1: screening for feto-fetal transfusion syndrome.

Return to recommendations

Diagnostic monitoring for twin anaemia polycythaemia sequence

Recommendations 1.4.30 and 1.4.31

Why the committee made the recommendations

There was limited evidence for screening and diagnostic monitoring for twin anaemia polycythaemia sequence (TAPS). The committee discussed, based on their expertise, that there is also limited evidence on the natural history of spontaneous TAPS and effective interventions for it in uncomplicated monochorionic pregnancies. They agreed that its incidence is likely to be low, so they could not recommend screening for it in women whose monochorionic pregnancy is uncomplicated.

The committee agreed that monitoring would be beneficial for women with the complications in recommendations 1.4.30 and 1.4.31. They recommended screening for TAPS in this population for 2 reasons:

- Complicated monochorionic pregnancies have an increased risk of fetal and neonatal death and morbidity. Diagnosing TAPS as a further complication is likely to influence how the woman's pregnancy is managed, including the timing of preterm birth.
- Advanced TAPS (stages 3 and 4) is associated with abnormal fetal umbilical artery and ductus venosus doppler parameters, or signs of fetal cardiac failure in the anaemic baby. These can also occur in a number of other conditions, so the diagnosis of severe TAPS (either alone or as a comorbidity) may be missed if it is not specifically screened for.

The committee concluded that for women who have a pregnancy in which TAPS is a comorbid complication or is of advanced stage, the risk to the babies without diagnosis and intervention is likely to be greater than the potential harms of

interventions. These include preterm birth or potential in-utero therapies, such as in-utero transfusion, in pre-viable or extremely premature pregnancies.

The committee agreed that when TAPS is suspected, women should be referred to a tertiary level fetal medicine centre. They felt that the benefits of managing complicated monochorionic pregnancies in this setting would outweigh the potential disadvantages of inconvenience of travel and transfer to units away from home.

Given the limited evidence on the diagnostic accuracy of middle cerebral artery peak systolic velocity (MCA-PSV) for all types of monochorionic twins, regardless of complications, and uncertainties about the natural history of TAPS and its management, the committee decided to make a research recommendation to inform future guidance.

How the recommendations might affect practice

The recommendation may increase the number of assessments of women with complicated monochorionic pregnancies and referral for appropriate management. However, the committee agreed that any increase in referrals would be offset by the benefits of better detection and management of complicated monochorionic pregnancies.

Full details of the evidence and the committee's discussion are in evidence review A3: screening for TAPS.

Return to recommendations

Preventing preterm birth

Recommendations 1.5.1 and 1.5.2

Why the committee made the recommendations

The evidence for intramuscular progesterone in the prevention of spontaneous preterm birth showed it had no clinical benefit and, in some instances, had negative or unpleasant side effects, so it was not recommended (recommendation 1.5.1).

The committee retained the existing 2011 recommendation that arabin pessary, bed rest, cervical cerclage and oral tocolytics should not be used routinely to prevent

spontaneous preterm birth because there was still no evidence to support their use. (recommendation 1.5.2).

The committee decided not to make recommendations on the use of vaginal progesterone to prevent preterm birth because they knew about evidence that would be emerging about the use of progesterone in subgroups of women with a short cervix that could change their conclusions about its effectiveness. This also meant the committee preferred not to recommend cervical length screening (see the rationale section on cervical length screening in twin pregnancy).

How the recommendations might affect practice

The recommendations reinforce current practice.

Full details of the evidence and the committee's discussion are in evidence review B2: interventions to prevent spontaneous preterm birth.

Return to recommendations

Planning birth: information and support

Recommendations 1.8.1 to 1.8.3

Why the committee made the recommendations

The committee discussed the importance of providing care that is woman-centred, in which shared decision making between the woman and her healthcare professional is essential. The committee agreed on the topics that need to be discussed with women to explain the available options and find out their wishes. Information needs to be tailored to each woman's pregnancy because some twin and triplet pregnancies carry more risks than others.

The committee acknowledged equality considerations for women who may have additional needs (such as needing an interpreter) in the context of providing information and communication. They cross-referred to NICE's guideline on patient experience in adult NHS services, which describes general good practice on how to do this.

Return to recommendations

Timing of birth

Recommendations 1.9.1 to 1.9.12

Why the committee made the recommendations

There was not enough good evidence to identify the optimal timing of birth according to chorionicity and amnionicity, so the committee also used their expertise and experience to make recommendations. The committee agreed that it was critical to give women the information they need to participate in shared decisions about when their babies are born. This includes explaining the known risk of spontaneous preterm birth in twin and triplet pregnancy and its possible consequences, such as admission to a neonatal unit. The committee retained this advice from the 2011 guideline (recommendations 1.9.1 to 1.9.3) because it was consistent with their experience and knowledge. They agreed that this information is important for planning the timing of birth.

Women also need to know why it is recommended for them to have a planned birth by a particular week of pregnancy. There is a trade-off between clinical benefits and harms when women have not given birth spontaneously by a given gestational age. These include the risks of neonatal mortality and morbidity associated with planned birth versus the risks of stillbirth from continued pregnancy. The committee agreed that both timing and mode of birth should be discussed with women in the context of these potential risks. Women can use this advice to make an informed choice.

Twin pregnancy (recommendations 1.9.9 and 1.9.10)

Evidence suggests a consistently higher fetal death rate (at all gestational ages) in monochorionic twin pregnancies than in dichorionic twin pregnancies. The committee therefore recommended earlier planned birth, at 36 weeks, for women with a monochorionic diamniotic pregnancy to reflect the higher risk and complexity of this type of pregnancy (recommendation 1.9.10). This was consistent with the 2011 guideline and therefore corresponds to current clinical practice.

The committee also clarified the timing of birth for monochorionic monoamniotic twins, which was not explicitly covered by the 2011 guideline – the previous guideline did not divide monochorionic twins into diamniotic or monoamniotic groups. Based on evidence relating to the incidence of neonatal mortality and morbidity

according to chorionicity and amnionicity, the committee recommended offering planned birth between 32^{+0} and 33^{+6} weeks because this timing did not appear to be associated with an increased risk of serious neonatal adverse outcomes.

Triplet pregnancy (recommendation 1.9.10)

No evidence was identified in triplet pregnancy, so the discussion was based on the committee's expertise and experience. They clarified the recommendations from the 2011 guideline by considering triplet pregnancies by type (trichorionic triamniotic, trichorionic diamniotic and trichorionic monoamniotic) rather than as one group. The committee agreed that monochorionic triamniotic triplet pregnancies and triplet pregnancies with a shared amnion are rarer and carry significant risks for the babies. For these women, the timing of birth should be discussed individually.

When planned birth is declined

The committee highlighted that women's choice needs to be respected and that if a woman declines planned birth at the recommended time, she should be offered weekly appointments to minimise risk, monitor progress and help to identify any complications as soon as possible.

How the recommendations might affect practice

The recommendations clarify the timing of when women with a monochorionic monoamniotic pregnancy should be offered planned birth. Although this is a change from the 2011 guideline, it reinforces current practice.

Full details of the evidence and the committee's discussion are in evidence review D: timing of birth.

Return to recommendations

Mode of birth

Recommendations 1.10.1 to 1.10.7

Why the committee made the recommendations

Twin pregnancy: dichorionic diamniotic and monochorionic diamniotic (recommendations 1.10.1 to 1.10.5)

For women who are more than 32 weeks pregnant and have an uncomplicated pregnancy, the evidence showed there is no significant difference in risk between vaginal birth and caesarean section, both for the woman and her babies. The committee's experience supported this, so they agreed that healthcare professionals should explain this to the woman and support her choice as long as the conditions in recommendation 1.10.1 are met and the first baby is in a head-first position.

There was only limited evidence about mode of birth when the first baby is not head first. The committee agreed that in their clinical experience, this carries a higher risk of problems such as cord accidents during birth. Because of this, a caesarean section is the safest option to offer women after 32 weeks and for women in established preterm labour between 26 and 32 weeks.

According to the evidence, not all women give birth according to their birth plan. The committee decided it was important to explain this to women so that they are prepared for the possibility of not giving birth in the way they prefer.

Monochorionic monoamniotic twin pregnancy and triplet pregnancy (recommendations 1.10.6 and 1.10.7)

Monochorionic monoamniotic twin pregnancies and triplet pregnancies are the least common and highest-risk types of pregnancy and evidence about mode of birth was limited for these women. However, the committee agreed from their experience that caesarean section should be the preferred option and should be offered at the time the birth is planned to happen or after the diagnosis of established labour.

How the recommendations might affect practice

The recommendations largely reflect current practice. Supporting the woman's preferred mode of birth might increase the number of planned vaginal births, which may reduce costs. This is likely to be partly offset by the fact that a proportion of these women would go on to give birth by caesarean section for one or both twins.

Full details of the evidence and the committee's discussion are in evidence review C1: mode of birth.

Return to recommendations

Fetal monitoring during labour

Recommendations 1.11.1 to 1.11.21

Why the committee made the recommendations

Twin pregnancy

There was no evidence on the most effective method of fetal monitoring in labour for improving outcomes in women with a twin pregnancy and their babies, so the committee used their expertise and experience along with NICE guidance on fetal monitoring in singleton pregnancy (intrapartum care for healthy women and babies) to make recommendations. They agreed that clinically it is well recognised that twins are at increased risk of complications during labour, especially the second twin, so they recommended continuous fetal monitoring. Continuous cardiotocography monitoring is the only modality that can assess both twin fetal heart rates simultaneously during established labour.

Antenatal information for women

The committee agreed on the importance of explaining to women the lack of evidence about monitoring with cardiotocography specifically in twins, and that recommendations are based on NICE guidance for singleton pregnancy (intrapartum care for healthy women and babies). Healthcare professionals should provide a detailed explanation of what cardiotocography involves and why it is used and give women a chance to discuss their wishes and concerns. Recommending this before 28 weeks gives women time to make an informed decision and takes into account the fact that many twins are born prematurely.

Intrapartum monitoring

The committee recommended offering continuous cardiotocography to women in established labour with a twin pregnancy over 26 weeks because at this gestational age, neonatal survival rates improve and the risks of neonatal morbidity from preterm

birth are falling. The advantages of using cardiotocography over intermittent auscultation monitoring include the ability to assess baseline variability and monitor continuously.

Performing a portable ultrasound (bedside) scan at the start of established labour (recommendation 1.11.4) not only helps to locate the fetal hearts but also confirms presentation – malpresentation is more common in twin pregnancy than singleton pregnancy and an emergency caesarean section may be indicated if the first twin presents in the breech position.

The committee recommended involving a senior obstetrician to decide how twins are monitored in established extreme premature labour (23^{+0} to 25^{+6} weeks of pregnancy) in line with NICE guidance on premature labour and birth in singleton pregnancies.

The committee recommended dual channel monitors to make sure both fetal heart rates could be monitored and displayed accurately at the same time on the same record during labour. Maternal pulse monitoring should be displayed on the same continuous cardiotocography trace to ensure 2 fetal heart rates were being recorded (without mistaking the maternal heart rate for a fetal heart rate).

The committee recommended classifying and interpreting cardiotocography in a way that is broadly consistent with the NICE guideline on intrapartum care for healthy women and babies, but with additional considerations specific to twins. These include regarding twin pregnancy as a fetal clinical risk factor when classifying a cardiotocograph finding as ‘abnormal’ or ‘non-reassuring’. This would result in a lower threshold for classifying a cardiotocograph as pathological.

Management based on cardiotocography

Failing to successfully monitor one or both babies could lead to adverse perinatal outcomes. The committee recommended applying a fetal scalp electrode to the first baby while continuing abdominal monitoring of the second baby if abdominal monitoring is unsuccessful or there are concerns about synchronicity of the fetal hearts. This should only be carried out after 34 weeks of pregnancy and if there are no contraindications such as HIV, hepatitis or maternal thrombocytopenia.

If there is 'suspicious' cardiotocography in the first baby during established labour, the committee recommended involving a senior healthcare professional to help manage reversible causes such as dehydration, infection or positional loss of contact, before applying a fetal scalp electrode to the first baby (in the absence of contraindications) while continuing abdominal monitoring of the second baby.

In case of 'pathological' cardiotocography in the first baby, a senior healthcare professional should discuss with the woman using fetal blood sampling in the first baby if the benefits are likely to outweigh the potential risks – these include avoiding a second-stage caesarean section, which increases maternal morbidity and mortality.

After the first baby is born, cardiotocographic monitoring of the second baby should continue to detect any 'suspicious' or 'pathological' cardiotocography that could lead to the need for a caesarean section.

Triplet pregnancy

The committee did not make recommendations for women with a triplet pregnancy because most of these women give birth by caesarean section. Monitoring in labour would therefore be rare and decisions would be made on an individual basis.

How the recommendations might affect practice

The recommendations are consistent with the NICE guideline on intrapartum care for healthy women and babies taking into account the twin-specific measures. It is not anticipated that the recommendations will lead to major changes in current clinical practice.

Full details of the evidence and the committee's discussion are in evidence review C2: fetal monitoring.

Return to recommendations

Analgesia

Recommendations 1.12.1 to 1.12.3

Why the committee made the recommendations

There is limited evidence on analgesia in labour for women with a twin pregnancy, and no evidence for women with a triplet pregnancy, so the committee used their expertise and experience along with the very limited evidence to make recommendations. They agreed that there is variation in practice in relation to when healthcare professionals discuss analgesia and anaesthesia with women and what they should discuss, so they specified when this should happen during pregnancy and what to cover.

Women with a twin or triplet pregnancy have an increased risk of intervention in labour, including assisted birth or caesarean section for one or more of the babies, and additional internal manoeuvres. Having an epidural in place allows analgesia or anaesthesia to be given quickly when it is needed, reducing the potential need for emergency general anaesthesia.

The limited evidence suggested that having an epidural in place also reduces the need for emergency caesarean section for the second twin after vaginal birth of the first twin, possibly by allowing more effective internal manoeuvres to allow the second twin to be born vaginally.

How the recommendations might affect practice

The recommendations will reinforce current best practice.

Full details of the evidence and the committee's discussion are in evidence review C3: analgesia.

Return to recommendations

Managing the third stage of labour

Recommendations 1.13.1 to 1.13.9

Why the committee made the recommendations

The evidence was very limited, so the committee used their clinical expertise and experience to make recommendations. Multiple pregnancy is a risk factor for postpartum haemorrhage (see the NICE guideline on intrapartum care for healthy women and babies) because of over-distension of the uterus and enlarged

placenta(s). The committee agreed that healthcare professionals should explain this to women in the antenatal period and assess and re-evaluate each woman's individual risk as her pregnancy progresses.

Because of the risk of postpartum haemorrhage, the committee agreed that active management of the third stage of labour using uterotonics should be offered to all women, and physiological management should not be offered.

It is already well-established as current practice and is supported by the committee's experience that when women have more than 1 risk factor for postpartum haemorrhage, additional uterotonics can reduce this risk. There is no clear evidence on the comparative effectiveness of different uterotonics in twin or triplet pregnancy. Each uterotonic has risk factors and contraindications, so the committee did not recommend a specific one.

The committee agreed on the importance of having existing intravenous access and blood products readily available in case a postpartum haemorrhage does occur.

How the recommendations might affect practice

The recommendations reinforce current best practice.

Full details of the evidence and the committee's discussion are in evidence review C4: interventions to prevent postpartum haemorrhage in the third stage of labour.

Return to recommendations

Context

Twins or triplets occur in approximately 1 in 60 pregnancies (16 in every 1,000 women giving birth in 2015 had a multiple birth), and 3% of live-born babies are from multiple gestations. The incidence of multiple births has risen in the last 30 years. This is due mainly to increasing use of assisted reproduction techniques, including in vitro fertilisation (IVF), and also to changing demographics as women defer pregnancy and twins are more common at later ages (102 in every 1,000 women giving birth in 2015 were aged 45 or over).

Women with a twin or triplet pregnancy are at higher risk compared with women with a singleton pregnancy. Adverse outcomes are more likely, both for the woman and her babies, during the prenatal and intrapartum periods. Because of this, women need increased monitoring and more contact with healthcare professionals during their pregnancy.

Assessment and planning start as soon as the twin or triplet pregnancy is detected and continue throughout pregnancy at each antenatal contact. Determining the chorionicity and amnionicity of the pregnancy allows the risk to be stratified and the number of antenatal visits and ultrasound examinations to be planned. It is important that ultrasound surveillance is carefully scheduled to monitor for complications including selective intrauterine growth restriction, feto-fetal transfusion syndrome and twin anaemia polycythaemia sequence (TAPS).

Identifying complications earlier means that decisions can be made promptly about referring the woman to a tertiary level fetal medicine centre. It also informs discussions with women in their second and third trimesters about their hopes and wishes in relation to timing and mode of birth, and the management of the intrapartum period (including fetal monitoring, analgesia and the third stage of labour).

This guideline replaces the previous NICE guideline on multiple pregnancy (CG129). The surveillance process found new evidence and identified a need to include intrapartum care, an area that was not included in the original guideline. In current practice, a significant proportion of multiple pregnancy losses occur intrapartum and the risk of adverse perinatal outcomes is greater in multiple than in singleton pregnancies.

The guideline updates recommendations on screening and monitoring for selective intrauterine growth restriction and feto-fetal transfusion syndrome, and makes new recommendations on screening and monitoring for TAPS; screening for and preventing preterm birth; and timing of birth. New recommendations on intrapartum care cover mode of birth, fetal monitoring, analgesia and managing the third stage of labour.

Finding more information and resources

To find out what NICE has said on topics related to this guideline, see our web page on pregnancy.

Update information

March 2019

This guideline is an update of NICE guideline CG129 (published September 2011) and will replace it.

We have reviewed the evidence on fetal complications, preterm birth, timing of birth and intrapartum care in twin and triplet pregnancy.

Recommendations are marked **[2019]** if the evidence has been reviewed.

Recommendations that have been deleted or changed

We propose to delete some recommendations from the 2011 guideline. Table 1 sets out these recommendations and includes details of replacement recommendations. If there is no replacement recommendation, an explanation for the proposed deletion is given.

In recommendations shaded in grey and ending **[2011, amended 2019]**, we have made changes that could affect the intent without reviewing the evidence. Yellow shading is used to highlight these changes, and reasons for the changes are given in table 2.

In recommendations shaded in grey and ending **[2011]**, we have not reviewed the evidence. In some cases, minor changes have been made – for example, to update links, or bring the language and style up to date – without changing the intent of the recommendation. Minor changes are listed in table 3.

See also the previous NICE guideline and supporting documents.

Table 1 Recommendations that have been deleted

Recommendation in 2011 guideline	Comment
Screening for Down's syndrome	Replaced by:

1.3.2.1 Before screening for Down's syndrome offer women with twin and triplet pregnancies information about: • the greater likelihood of Down's syndrome in twin and triplet pregnancies • the different options for screening • the false positive rate of screening tests, which is higher in twin and triplet pregnancies • the likelihood of being offered invasive testing, which is higher in twin and triplet pregnancies • the greater likelihood of complications of invasive testing • the physical risks and psychological implications in the short and long term relating to selective fetal reduction. 1.3.2.2 Healthcare professionals who screen for Down's syndrome in twin pregnancies should: • map the fetal positions • use the combined screening test (nuchal translucency, beta human chorionic gonadotrophin, pregnancy-associated plasma protein-A) for Down's syndrome when crown–rump length measures from 45 mm to 84 mm (at approximately 11 weeks 0 days to 13 weeks 6 days; see 1.1.1.1) • calculate the risk of Down's syndrome per pregnancy in monochorionic twin pregnancies • calculate the risk of Down's syndrome for each baby in dichorionic twin pregnancies. 1.3.2.3 Healthcare professionals who screen for Down's syndrome in triplet pregnancies should: • map the fetal positions • use nuchal translucency and maternal age to screen for Down's syndrome when crown–rump length measures from 45 mm to 84 mm (at approximately 11 weeks 0 days to 13 weeks 6 days; see 1.1.1.1)	**Screening for chromosomal abnormalities** 1.4.3 Offer screening for chromosomal abnormalities as outlined in the National Screening Committee's (NSC) recommendations on cfDNA screening.

• calculate the risk of Down's syndrome per pregnancy in monochorionic triplet pregnancies • calculate the risk of Down's syndrome for each baby in dichorionic and trichorionic triplet pregnancies. 1.3.2.4 Where first trimester screening for Down's syndrome cannot be offered to a woman with a twin pregnancy (for example, if the woman books too late in pregnancy) consider second trimester serum screening and explain to the woman the potential problems of such screening. These include the increased likelihood of pregnancy loss associated with double invasive testing because the risk of Down's syndrome cannot be calculated separately for each baby. 1.3.2.5 Do not use second trimester serum screening for Down's syndrome in triplet pregnancies. 1.3.2.6 Offer women with twin and triplet pregnancies who have a high risk of Down's syndrome (use a threshold of 1:150 as defined by the NHS Fetal Anomaly Screening Programme [FASP]) referral to a fetal medicine specialist in a tertiary level fetal medicine centre.	

Monitoring for feto-fetal transfusion syndrome 1.3.4.1 Do not monitor for feto-fetal transfusion syndrome in the first trimester.	Replaced by: **Screening for intrauterine growth restriction and feto-fetal transfusion syndrome in the first trimester** 1.4.13 Do not offer women with a twin or triplet pregnancy screening for intrauterine growth restriction or feto-fetal transfusion syndrome in the first trimester.
1.3.4.2 Start diagnostic monitoring with ultrasound for feto-fetal transfusion syndrome (including to identify membrane folding) from 16 weeks. Repeat monitoring fortnightly until 24 weeks.	Replaced by: 1.4.19 Offer diagnostic monitoring for feto-fetal transfusion syndrome to women with a monochorionic twin or triplet pregnancy. Monitor with ultrasound every 14 days from 16 weeks until birth.

1.3.4.3 Carry out weekly monitoring of twin and triplet pregnancies with membrane folding or other possible early signs of feto-fetal transfusion syndrome (specifically, pregnancies with intertwin membrane infolding and amniotic fluid discordance) to allow time to intervene if needed.	1.4.20 Use ultrasound assessment, with a visible amniotic membrane within the measurement image, to monitor for feto-fetal transfusion syndrome. Measure the DVP depths of amniotic fluid on either side of the amniotic membrane. 1.4.21 Increase the frequency of diagnostic monitoring for feto-fetal transfusion syndrome in the woman's second or third trimester to at least weekly if there are concerns about differences between the babies' amniotic fluid volumes (a difference in DVP depth of 4 cm or more). Include doppler assessment of the umbilical artery flow for each baby. 1.4.22 Refer the woman to a tertiary level fetal medicine centre if feto-fetal transfusion syndrome is diagnosed, based on the following: • the amniotic sac of 1 baby has a DVP depth of less than 2 cm **and** • the amniotic sac of another baby has a DVP depth of: o over 8 cm before 20+0 weeks of pregnancy **or** o over 10 cm from 20+0 weeks. 1.4.23 Refer the woman to her named specialist obstetrician for multiple pregnancy in her second or third trimester for further assessment and monitoring if: • the amniotic sac of 1 baby has a DVP depth in the normal range **and** • the amniotic sac of another baby has a DVP depth of: o less than 2 cm **or** o 8 cm or more. [2019]

Monitoring for intrauterine growth restriction 1.3.5.1 Do not use abdominal palpation or symphysis–fundal height measurements to predict intrauterine growth restriction in twin or triplet pregnancies.	Replaced by: 1.4.11 Do not offer women with a twin or triplet pregnancy screening for intrauterine growth restriction or feto-fetal transfusion syndrome in the first trimester. 1.4.12 Do not use abdominal palpation or symphysis–fundal height measurements to monitor for intrauterine growth restriction in a dichorionic twin or trichorionic triplet pregnancy. 1.4.24 Do not use abdominal palpation or symphysis–fundal height measurements to monitor for intrauterine growth restriction in women with a monochorionic twin or triplet pregnancy.

1.3.5.2 Estimate fetal weight discordance using two or more biometric parameters at each ultrasound scan from 20 weeks. Aim to undertake scans at intervals of less than 28 days. Consider a 25% or greater difference in size between twins or triplets as a clinically important indicator of intrauterine growth restriction and offer referral to a tertiary level fetal medicine centre. 1.3.5.3 Do not use umbilical artery Doppler ultrasound to monitor for intrauterine growth restriction or birthweight differences in twin or triplet pregnancies.	Replaced by: 1.4.13 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 volumes. To assess amniotic fluid volume, measure the deepest vertical pocket (DVP) on either side of the amniotic membrane. 1.1.14 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. 1.4.15 Calculate and document estimated fetal weight (EFW) discordance as follows: • dichorionic twins: o (EFW larger fetus – EFW smaller fetus) / EFW larger fetus • trichorionic triplets: o (EFW largest fetus – EFW smallest fetus) / EFW largest fetus o (EFW largest fetus – EFW middle fetus) / EFW largest fetus. 1.4.16 Increase diagnostic monitoring in the second and third trimesters to at least weekly if there is an estimated fetal weight discordance of 20% or more. Include doppler assessment of the umbilical artery flow for each baby. 1.4.17 Refer women with a dichorionic twin or trichorionic triplet pregnancy to a tertiary level fetal medicine centre if there is an estimated fetal weight discordance of 25% or more because this is a clinically important indicator of selective intrauterine growth restriction. 1.4.25 At each ultrasound scan from 16 weeks, offer women with a

	monochorionic twin or triplet pregnancy diagnostic monitoring for fetal weight discordance using 2 or more biometric parameters (in addition to amniotic fluid volume assessment see recommendation 1.4.16). Monitor at a frequency that should not exceed 14 days. 1.4.26 Calculate and document estimated fetal weight (EFW) discordance in monochorionic twins as follows: • (EFW larger fetus – EFW smaller fetus) / EFW larger fetus 1.4.27 The named specialist obstetrician should review the estimated fetal weights of dichorionic and monochorionic triplets and calculate the estimated fetal weight discordance based on their understanding of the implications of chorionicity. 1.4.28 Increase diagnostic monitoring in the second and third trimesters to at least weekly if there are concerns about differences between the babies in estimated fetal weight of more than 20%. Include doppler assessment of the umbilical artery flow for each baby. 1.4.29 Refer women to a tertiary level fetal medicine centre if a 25% or greater difference in estimated fetal weight is measured between twins or triplets because this is a clinically important indicator of intrauterine growth restriction.

Predicting the risk of preterm birth	**Screening for preterm birth**
1.5.1.1 Be aware that women with twin pregnancies have a higher risk of spontaneous preterm birth if they have had a spontaneous preterm birth in a previous singleton pregnancy.	1.4.8 Explain to women and their family members or carers that: • they have a higher risk of spontaneous preterm birth (see timing of birth) than women with a singleton pregnancy, and • this risk is further increased if they have had a spontaneous preterm birth in a previous pregnancy.
1.5.1.4 Do not use cervical length (with or without fetal fibronectin) routinely to predict the risk of spontaneous preterm birth in twin or triplet pregnancies.	The committee decided not to not make a recommendation related to cervical length screening. The evidence suggested that cervical length is a moderate predictor of spontaneous preterm birth in twin pregnancy. Although there were some inconsistencies between studies, the committee agreed they still supported the use of cervical length measurements to predict preterm birth in twin pregnancy. Establishing that a woman is at risk of preterm birth allows an intervention to be offered, and there is some evidence that vaginal progesterone may reduce this risk in women with a twin pregnancy. However, the committee was also aware that new evidence would be emerging about the use of vaginal progesterone in subgroups of women with a short cervix that could change their conclusions about its effectiveness. This uncertainty meant the committee could not recommend vaginal progesterone to prevent preterm birth. Because of this, the committee also decided they could not recommend cervical length screening in the absence of an effective intervention to offer women with a higher risk of preterm birth.

1.5.2.1 Do not use the following interventions (alone or in combination) routinely to prevent spontaneous preterm birth in twin or triplet pregnancies: • bed rest at home or in hospital • intramuscular or vaginal progesterone • cervical cerclage • oral tocolytics.	1.5.1 Do not offer intramuscular progesterone to prevent spontaneous preterm birth in women with a twin or triplet pregnancy. 1.5.2 Do not offer the following interventions (alone or in combination) routinely to prevent spontaneous preterm birth in women with a twin or triplet pregnancy: • Arabin pessary • Bed rest • Cervical cerclage • Oral tocolytics.

Timing of birth	**Timing of birth**
1.7.1.1 Discuss with women with twin and triplet pregnancies the timing of birth and possible modes of delivery early in the third trimester.	1.9.1 Explain to women with a twin pregnancy that about 60 in 100 twin pregnancies result in spontaneous birth before 37 weeks.
1.7.1.2 Inform women with twin pregnancies that about 60% of twin pregnancies result in spontaneous birth before 37 weeks 0 days.	1.9.2 Explain to women with a triplet pregnancy that about 75 in 100 triplet pregnancies result in spontaneous birth before 35 weeks.
1.7.1.3 Inform women with triplet pregnancies that about 75% of triplet pregnancies result in spontaneous birth before 35 weeks 0 days.	1.9.3 Explain to women with a twin or triplet pregnancy that spontaneous preterm birth and elective preterm birth are associated with an increased risk of admission to a neonatal unit.
1.7.1.4 Inform women with twin and triplet pregnancies that spontaneous preterm birth and elective preterm birth are associated with an increased risk of admission to a special care baby unit.	1.9.4 Explain to women with an uncomplicated dichorionic diamniotic twin pregnancy that • planned birth from 37^{+0} weeks does not appear to be associated with an increased risk of serious adverse outcomes, and • continuing the pregnancy beyond 37^{+6} weeks increases the risk of fetal death.
1.7.1.5 Inform women with uncomplicated monochorionic twin pregnancies that elective birth from 36 weeks 0 days does not appear to be associated with an increased risk of serious adverse outcomes, and that continuing uncomplicated twin pregnancies beyond 38 weeks 0 days increases the risk of fetal death.	1.9.5 Explain to women with an uncomplicated monochorionic diamniotic twin pregnancy that • planned birth from 36^{+0} weeks does not appear to be associated with an increased risk of serious neonatal adverse outcomes, and • continuing the pregnancy beyond 36^{+6} weeks increases the risk of fetal death.
1.7.1.6 Inform women with uncomplicated dichorionic twin pregnancies that elective birth from 37 weeks 0 days does not appear to be associated with an increased risk of serious adverse outcomes, and that continuing uncomplicated twin pregnancies beyond 38 weeks 0 days increases the risk of fetal death.	1.9.6 Explain to women with an uncomplicated monochorionic monoamniotic twin pregnancy that planned birth between 32^{+0} and 33^{+6} weeks does not appear to be associated with an increased risk of serious neonatal adverse outcome. Also explain that: • these babies will usually need to be admitted to the neonatal unit and have an increased risk of respiratory problems
1.7.1.7 Inform women with triplet pregnancies that continuing uncomplicated triplet pregnancies beyond 36 weeks 0 days increases the risk of fetal death.	
1.7.1.8 Offer women with uncomplicated: • monochorionic twin pregnancies elective birth from 36 weeks 0 days,	

after a course of antenatal corticosteroids has been 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. 1.7.1.9 For women who decline elective birth, offer weekly appointments with the specialist obstetrician. At each appointment offer an ultrasound scan and perform weekly biophysical profile assessments and fortnightly fetal growth scans.	• continuing the pregnancy beyond 33^{+6} weeks increases the risk of fetal death. 1.9.7 Explain to women with an uncomplicated trichorionic triamniotic or dichorionic triamniotic triplet pregnancy that continuing the pregnancy beyond 35^{+6} weeks increases the risk of fetal death. 1.9.8 Explain to women with a monochorionic triamniotic triplet pregnancy or a triplet pregnancy that involves a shared amnion that the timing of birth will be decided and discussed with each woman individually. **When to offer planned birth** 1.9.9 Offer planned birth at 37 weeks to women with an uncomplicated dichorionic diamniotic twin pregnancy. 1.9.10 Offer planned birth as follows, after a course of antenatal corticosteroids has been offered: • at 36 weeks for women with uncomplicated monochorionic diamniotic twin pregnancy • between 32+0 weeks to 33+6 weeks for women with uncomplicated monochorionic monoamniotic twin pregnancy • at 35 weeks for women with an uncomplicated trichorionic triamniotic or dichorionic triamniotic triplet pregnancy. 1.9.11 Offer women with any complicated twin or triplet pregnancy an individual assessment to determine the timing of planned birth. 1.9.12 For women who decline planned birth at the timing recommended in recommendations 1.9.9 and 1.9.10, offer weekly appointments with the specialist obstetrician. At each appointment, offer an ultrasound scan and perform assessments of amniotic fluid volumes and doppler of the umbilical artery flow

	for each baby in addition to fortnightly fetal growth scans.
Deleted research recommendations from updated sections	
RR 7 When and how should screening for chromosomal abnormalities be conducted in twin and triplet pregnancies?	This has now been covered by a cross-reference to the National Screening Committee's (NSC) recommendations on cfDNA screening. Therefore, any further research could only be recommended by the screening committee rather than this guideline.
RR 9 When and how should screening for feto-fetal transfusion syndrome be conducted in twin and triplet pregnancies?	The new evidence review related to the detection of feto-fetal transfusion syndrome has identified further research, published since 2011, that was included as evidence and more research is unlikely to change the updated recommendations.
RR 10 What is the pattern of fetal growth in healthy twin and triplet pregnancies, and how should intrauterine growth restriction be defined in twin and triplet pregnancies?	The new evidence review related to the detection of intrauterine growth restriction has identified further research, published since 2011, that was included as evidence and more research is unlikely to change the updated recommendations.
RR 12 Which clinical factors or laboratory tests are accurate predictors of spontaneous preterm birth in twin and triplet pregnancies?	The committee considered new evidence, published since 2011, which identified a predictor of spontaneous preterm birth.
RR 13 What interventions are effective in preventing spontaneous preterm birth in women with twin and triplet pregnancies, especially in those at high risk of preterm birth?	The committee considered new evidence, published since 2011, which identified an intervention to lower the risk of spontaneous preterm birth.
RR 17 What is the incidence of perinatal and neonatal morbidity and mortality in babies born by elective birth in twin and triplet pregnancies?	The review question related to this topic was revised and new evidence, published since 2011, was considered to draft recommendations. Therefore, the committee decided that this was no longer a priority.

Table 2 Amended recommendation wording (change to intent) without an evidence review

Recommendation in 2011 guideline	Recommendation in current guideline	Reason for change
1.1.1.1, 1.1.2.1, 1.1.2.3, 1.1.2.4, 1.1.2.8, 1.1.2.9, 1.1.2.10, 1.1.2.11, 1.3.1.2	Recommendations 1.1.1, 1.1.3, 1.1.5, 1.1.6, 1.1.10, 1.1.11, 1.1.12, 1.1.13, 1.4.2	Amnionicity has been added to these recommendations in addition to chorionicity. This was done because monoamnionicity is an additional complication that would

		need to be determined to inform management options.
1.1.1.1 Offer women with twin and triplet pregnancies a first trimester ultrasound scan when crown–rump length measures from 45 mm to 84 mm (at approximately 11 weeks 0 days to 13 weeks 6 days) to estimate gestational age, determine chorionicity and screen for Down's syndrome (ideally, these should all be performed at the same scan; see 1.1.2.1 and 1.1.2.2) [Antenatal care' (NICE clinical guideline 62) recommends determination of gestational age from 10 weeks 0 days. However, the aim in this recommendation is to keep to a minimum the number of scan appointments that women need to attend within a short time, especially if it is already known that a woman has a twin or triplet pregnancy.]	1.1.1 Offer women with a twin or triplet pregnancy a first trimester ultrasound scan when crown–rump length measures from 45 mm to 84 mm (at approximately 11+0 weeks to 13+6 weeks) to estimate gestational age, determine chorionicity and amnionicity, and screen for chromosomal abnormalities (ideally, these should all be performed at the same scan; see recommendations 1.1.3 and 1.1.4) [Antenatal care for uncomplicated pregnancies (NICE clinical guideline CG62) recommends determining gestational age from 10+0 weeks. However, the aim of this recommendation is to keep to a minimum the number of scan appointments that women need to attend within a short time, especially if it is already known that a woman has a twin or triplet pregnancy.]	Screening for Down's syndrome has been replaced by screening for chromosomal abnormalities because this section of the previous guideline has been replaced by a recommendation referring to the National Screening Committee's (NSC) recommendations on cfDNA screening (see recommendation 1.4.3).
1.1.2.1 Determine chorionicity at the time of detecting twin and triplet pregnancies by ultrasound using the number of placental masses, the lambda or T-sign and membrane thickness.	1.1.3 Determine chorionicity and amnionicity at the time of detecting a twin or triplet pregnancy by ultrasound using: • the number of placental masses • the presence of amniotic membrane(s) and	The committee clarified that the number as well as thickness of membranes needed to be determined.

1.1.2.3 If a woman with a twin or triplet pregnancy presents after 14 weeks 0 days, determine chorionicity at the earliest opportunity by ultrasound using all of the following: • the number of placental masses • the lambda or T-sign • membrane thickness • discordant fetal sex.	membrane thickness • the lambda or T-sign. 1.1.5 If a woman with a twin or triplet pregnancy presents after 14+0 weeks, determine chorionicity and amnionicity at the earliest opportunity by ultrasound using all of the following: • the number of placental masses • the presence of amniotic membrane(s) and membrane thickness • the lambda or T-sign • discordant fetal sex.	
1.2.3.5 Offer women with uncomplicated monochorionic diamniotic twin pregnancies at least nine antenatal appointments with a healthcare professional from the core team. At least two of these appointments should be with the specialist obstetrician. • Combine appointments with scans when crown–rump length measures from 45 mm to 84 mm (at approximately 11 weeks 0 days to 13 weeks 6 days) and then at estimated gestations of 16,	1.3.7 Offer women with an uncomplicated monochorionic diamniotic twin pregnancy at least 11 antenatal appointments with a healthcare professional from the core team. At least 2 of these appointments should be with the specialist obstetrician. • Combine appointments with scans when crown–rump length measures from 45 mm to 84 mm (at approximately 11+0 weeks to 13+6 weeks) and then at estimated gestations of 16, 18, 20, 22, 24, 26, 28, 30, 32 and 34 weeks.	Additional scans and appointments have been added at 26 and 30 weeks because of the committee's new recommendations on increased screening and monitoring.

18, 20, 22, 24, 28, 32 and 34 weeks (see 1.7.1.1) [See appendix D for recommendations 1.2.3.5 to 1.2.3.8 in table form].		
1.2.3.7 Offer women with uncomplicated monochorionic triamniotic and dichorionic triamniotic triplet pregnancies at least 11 antenatal appointments with a healthcare professional from the core team. At least 2 of these appointments should be with the specialist obstetrician. • Combine appointments with scans when crown–rump length measures from 45 mm to 84 mm (at approximately 11 weeks 0 days to 13 weeks 6 days) and then at estimated gestations of 16, 18, 20, 22, 24, 26, 28, 30, 32 and 34 weeks (see 1.7.1.1) [See appendix D for recommendations 1.2.3.5 to 1.2.3.8 in table form].	1.3.9 Offer women with a dichorionic triamniotic or monochorionic triamniotic triplet pregnancy at least 11 antenatal appointments with a healthcare professional from the core team. At least 5 of these appointments should be with the specialist obstetrician. • Combine appointments with scans when crown–rump length measures from 45 mm to 84 mm (at approximately 11^{+0} weeks to 13^{+6} weeks) and then at estimated gestations of 16, 18, 20, 22, 24, 26, 28, 30, 32 and 34 weeks.	Monochorionic triamniotic triplet pregnancies are very rare. The potential for adverse outcome from complications of monochorionicity are higher than in monochorionic twins. These would also always be 'complicated', and we have therefore removed 'uncomplicated' from the recommendation. For this reason, the committee recommended that the specialist obstetrician should review these pregnancies and their ultrasound assessment more frequently. This is to ensure optimal clinical assessment of ultrasound findings and any need for more frequent monitoring.
1.2.3.8 Offer women with uncomplicated trichorionic triamniotic triplet pregnancies at least seven antenatal appointments with a healthcare professional from the	1.3.8 Offer women with an uncomplicated trichorionic triamniotic triplet pregnancy at least 9 antenatal appointments with a healthcare professional from the core team. At least 2 of	Additional scans and appointments have been added at 26 and 30 weeks because of the committee's new recommendations on increased screening and monitoring.

core team. At least two of these appointments should be with the specialist obstetrician. • Combine appointments with scans when crown–rump length measures from 45 mm to 84 mm (at approximately 11 weeks 0 days to 13 weeks 6 days) and then at estimated gestations of 20, 24, 28, 32 and 34 weeks (see 1.7.1.1) [See appendix D for recommendations 1.2.3.5 to 1.2.3.8 in table form]. • Offer an additional appointment without a scan at 16 weeks.	these appointments should be with the specialist obstetrician. • Combine appointments with scans when crown–rump length measures from 45 mm to 84 mm (at approximately 11+0 weeks to 13+6 weeks) and then at estimated gestations of 16, 20, 24, 26, 28, 30, 32 and 34 weeks.	
1.3.3.3 Allow 45 minutes for the anomaly scan in twin and triplet pregnancies (as recommended by FASP) [See the NHS Fetal Anomaly Screening Programme (FASP)]. 1.3.3.4 Allow 30 minutes for growth scans in twin and triplet pregnancies.	1.4.6 Allow at least 45 minutes for the anomaly scan in twin and triplet pregnancies (as recommended by FASP). 1.4.7 Allow at least 30 minutes for growth scans in twin and triplet pregnancies.	'at least' has been added to these 2 recommendations to reflect the additional scanning for preterm birth at the time of the anomaly scan recommended in the updated guideline. This may require an extra 15 minutes if the same sonographer were to do it at the same visit.
1.4.1.2 Advise women with twin and triplet pregnancies that they should take 75 mg of aspirin daily from 12 weeks until the birth of the babies if they have	1.6.2 Advise women with a twin or triplet pregnancy to take low dose aspirin daily from 12 weeks until the birth of the babies if they have 2 or more of the risk factors specified in	For consistency across guidelines the committee preferred to cross-refer to the hypertension in pregnancy guideline rather than use an adapted recommendation which may be subject to change (the hypertension in pregnancy

one or more of the following risk factors for hypertension: • first pregnancy • age 40 years or older • pregnancy interval of more than 10 years • BMI of 35 kg/m^2 or more at first visit • family history of pre-eclampsia. [At the time of publication (September 2011) this drug did not have UK marketing authorisation for this indication. Informed consent should be obtained and documented. This recommendation is adapted from NICE's guideline on hypertension in pregnancy].	the NICE's guideline on hypertension in pregnancy. [At the time of consultation (March 2019), aspirin did not have a UK marketing authorisation for this indication. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the General Medical Council's Prescribing guidance: prescribing unlicensed medicines for further information.]	guideline is currently being updated).

1.6.1.1 Seek a consultant opinion from a tertiary level fetal medicine centre for:
• monochorionic monoamniotic twin pregnancies
• monochorionic monoamniotic triplet pregnancies
• monochorionic diamniotic triplet pregnancies
• dichorionic diamniotic triplet pregnancies
• pregnancies complicated by any of the following:
	1.7.1 Seek a consultant opinion from a tertiary level fetal medicine centre for:
	• pregnancies with a shared amnion:
	  ○ monochorionic monoamniotic twins
	  ○ dichorionic diamniotic triplets
	  ○ monochorionic diamniotic triplets
	  ○ monochorionic monoamniotic triplets
	• pregnancies complicated by any of the following:
		'Of 25% or more' was added to discordant fetal growth based on the updated intrauterine growth restriction recommendations.
		Suspected twin anaemia polycythaemia sequence (TAPS) was added as a result of the new recommendations in section 1.3.
		Twin reverse arterial perfusion sequence (TRAP) and conjoined twins or triplets are conditions that would always require consultant opinion from a tertiary level fetal medicine.

○ discordant fetal growth ○ fetal anomaly ○ discordant fetal death ○ feto-fetal transfusion syndrome.	○ fetal weight discordance (of 25% or more) ○ fetal anomaly (structural or chromosomal) ○ discordant fetal death ○ feto-fetal transfusion syndrome ○ twin reverse arterial perfusion sequence (TRAP) ○ conjoined twins or triplets ○ suspected twin anaemia polycythaemia sequence (see section 1.3).	

Table 3 Changes to recommendation wording for clarification only (no change to meaning)

Recommendation	Comment
Recommendations shaded in grey and ending **[2011]** or **[2011, amended 2019]**	Recommendations, where necessary, have been edited into the direct style (in line with current NICE style for recommendations in guidelines). Links to current guidelines have been checked and updated and cross-referencing has been added to the recommendations (rather than as a footnote) in line with current NICE style. Footnotes related to recommendations have also been updated where applicable. Yellow highlighting has not been applied to these changes.

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