NICE National Institute for Health and Care Excellence

NICE guideline

Preterm labour and birth

NICE guideline

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Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Contents

This guideline is the basis of QS135.

Overview

This guideline covers the care of women at increased risk of or with symptoms and signs of preterm labour (before 37 weeks) and women having a planned preterm birth. It aims to reduce the risks of preterm birth for the baby and describes treatments to prevent or delay early labour and birth.

Who is it for?

- Healthcare professionals who care for women at increased risk of or with symptoms and signs of preterm labour and women having a planned preterm birth
- Commissioners and providers of maternity services
- Women at increased risk of or with symptoms and signs of preterm labour and women having a planned preterm birth, and their families and carers

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.

1.1 Information and support

1.1.1 When giving information and support to women at increased risk of preterm labour, with suspected, diagnosed or established preterm labour, or having a planned preterm birth (and their family members or carers as appropriate):

- give this information and support as early as possible, taking into account the likelihood of preterm birth and the status of labour
- follow the principles in the NICE guideline on patient experience in adult NHS services
- bear in mind that the woman (and her family members or carers) may be particularly anxious
- give both oral and written information
- describe the symptoms and signs of preterm labour
- explain to the woman about the care she may be offered.

1.1.2 For women who are having a planned preterm birth or are offered treatment for preterm labour in line with sections 1.8–1.10 (and their family members or carers as appropriate), provide information and support that includes:

- information about the likelihood of the baby surviving and other outcomes (including long-term outcomes) and risks for the baby, giving values as natural frequencies (for example, 1 in 100)
- explaining about the neonatal care of preterm babies, including location of care
- explaining about the immediate problems that can arise when a baby is born preterm

- explaining about the possible long-term consequences of prematurity for the baby (how premature babies grow and develop)
- ongoing opportunities to talk about and state their wishes about resuscitation of the baby
- an opportunity to tour the neonatal unit
- an opportunity to speak to a neonatologist or paediatrician.

1.2 Prophylactic vaginal progesterone and prophylactic cervical cerclage

1.2.1 Offer a choice of either prophylactic vaginal progesterone or prophylactic cervical cerclage to women:

- with a history of spontaneous preterm birth or mid-trimester loss between 16^{+0} and 34^{+0} weeks of pregnancy **and**
- in whom a transvaginal ultrasound scan has been carried out between 16^{+0} and 24^{+0} weeks of pregnancy that reveals a cervical length of less than 25 mm.

  Discuss the benefits and risks of prophylactic progesterone and cervical cerclage with the woman and take her preferences into account.

1.2.2 Offer prophylactic vaginal progesterone to women with no history of spontaneous preterm birth or mid-trimester loss in whom a transvaginal ultrasound scan has been carried out between 16^{+0} and 24^{+0} weeks of pregnancy that reveals a cervical length of less than 25 mm.

1.2.3 Consider prophylactic cervical cerclage for women in whom a transvaginal ultrasound scan has been carried out between 16^{+0} and 24^{+0} weeks of pregnancy that reveals a cervical length of less than 25 mm and who have either:

- had preterm prelabour rupture of membranes (P-PROM) in a previous pregnancy **or**
- a history of cervical trauma.

1.3 *Diagnosing preterm prelabour rupture of membranes (P-PROM)*

1.3.1 In a woman reporting symptoms suggestive of P-PROM, offer a speculum examination to look for pooling of amniotic fluid and:

- if pooling of amniotic fluid is observed, do not perform any diagnostic test but offer care consistent with the woman having P-PROM (see sections 1.4, 1.5 and 1.9)
- if pooling of amniotic fluid is not observed, consider performing an insulin-like growth factor binding protein-1 test or placental alpha-microglobulin-1 test of vaginal fluid.

1.3.2 If the results of the insulin-like growth factor binding protein-1 or placental alpha-microglobulin-1 test are positive, do not use the test results alone to decide what care to offer the woman, but also take into account her clinical condition, her medical and pregnancy history and gestational age, and either:

- offer care consistent with the woman having P-PROM (see sections 1.4, 1.5 and 1.9) **or**
- re-evaluate the woman's diagnostic status at a later time point.

1.3.3 If the results of the insulin-like growth factor binding protein-1 or placental alpha-microglobulin-1 test are negative and no amniotic fluid is observed:

- do not offer antenatal prophylactic antibiotics
- explain to the woman that it is unlikely that she has P-PROM, but that she should return if she has any further symptoms suggestive of P-PROM or preterm labour.

1.3.4 Do not use nitrazine to diagnose P-PROM.

1.3.5 Do not perform diagnostic tests for P-PROM if labour becomes established in a woman reporting symptoms suggestive of P-PROM.

1.4 *Antenatal prophylactic antibiotics for women with P-PROM*

1.4.1 Offer women with P-PROM oral erythromycin 250 mg 4 times a day[1] for a maximum of 10 days or until the woman is in established labour (whichever is sooner).

1.4.2 For women with P-PROM who cannot tolerate erythromycin or in whom erythromycin is contraindicated, consider oral penicillin for a maximum of 10 days or until the woman is in established labour (whichever is sooner).

1.4.3 Do not offer women with P-PROM co-amoxiclav as prophylaxis for intrauterine infection.

1.4.4 For guidance on the use of intrapartum antibiotics, see the NICE guideline on antibiotics for early-onset neonatal infection.

1.5 Identifying infection in women with P-PROM

1.5.1 Use a combination of clinical assessment and tests (C-reactive protein, white blood cell count and measurement of fetal heart rate using cardiotocography) to diagnose intrauterine infection in women with P-PROM.

1.5.2 Do not use any one of the following in isolation to confirm or exclude intrauterine infection in women with P-PROM:

- a single test of C-reactive protein
- white blood cell count
- measurement of fetal heart rate using cardiotocography.

1.5.3 If the results of the clinical assessment or any of the tests are not consistent with each other, continue to observe the woman and consider repeating the tests.

1.6 'Rescue' cervical cerclage

1.6.1 Do not offer 'rescue' cervical cerclage to women with:

- signs of infection **or**
- active vaginal bleeding **or**
- uterine contractions.

1.6.2 Consider 'rescue' cervical cerclage for women between 16^{+0} and 27^{+6} weeks of pregnancy with a dilated cervix and exposed, unruptured fetal membranes:

- take into account gestational age (being aware that the benefits are likely to be greater for earlier gestations) and the extent of cervical dilatation
- discuss with a consultant obstetrician and consultant paediatrician.

1.6.3 Explain to women for whom 'rescue' cervical cerclage is being considered (and their family members or carers as appropriate):

- about the risks of the procedure
- that it aims to delay the birth, and so increase the likelihood of the baby surviving and of reducing serious neonatal morbidity.

1.7 Diagnosing preterm labour for women with intact membranes

1.7.1 Explain to women reporting symptoms of preterm labour who have intact membranes (and their family members or carers as appropriate):

- about the clinical assessment and diagnostic tests that are available
- how the clinical assessment and diagnostic tests are carried out
- what the benefits, risks and possible consequences of the clinical assessment and diagnostic tests are, including the consequences of false positive and false negative test results taking into account gestational age.

1.7.2 Offer a clinical assessment to women reporting symptoms of preterm labour who have intact membranes. This should include:

- clinical history taking
- the observations described for the initial assessment of a woman in labour in the NICE guideline on intrapartum care
- a speculum examination (followed by a digital vaginal examination[2] if the extent of cervical dilatation cannot be assessed).

1.7.3 If the clinical assessment suggests that the woman is in suspected preterm labour and she is 29^{+6} weeks pregnant or less, advise treatment for preterm labour as described in sections 1.8 and 1.9.

1.7.4 If the clinical assessment suggests that the woman is in suspected preterm labour and she is 30^{+0} weeks pregnant or more, consider transvaginal ultrasound measurement of cervical length as a diagnostic test to determine likelihood of birth within 48 hours. Act on the results as follows:

- if cervical length is more than 15 mm, explain to the woman that it is unlikely that she is in preterm labour and:
  - think about alternative diagnoses
  - discuss with her the benefits and risks of going home compared with continued monitoring and treatment in hospital
  - advise her that if she does decide to go home, she should return if symptoms suggestive of preterm labour persist or recur
- if cervical length is 15 mm or less, view the woman as being in diagnosed preterm labour and offer treatment as described in sections 1.8 and 1.9.

1.7.5 Consider fetal fibronectin testing as a diagnostic test to determine likelihood of birth within 48 hours for women who are 30^{+0} weeks pregnant or more if transvaginal ultrasound measurement of cervical length is indicated but is not available or not acceptable. Act on the results as follows:

- if fetal fibronectin testing is negative (concentration 50 ng/ml or less), explain to the woman that it is unlikely that she is in preterm labour and:
  - think about alternative diagnoses
  - discuss with her the benefits and risks of going home compared with continued monitoring and treatment in hospital
  - advise her that if she does decide to go home, she should return if symptoms suggestive of preterm labour persist or recur

- if fetal fibronectin testing is positive (concentration more than 50 ng/ml), view the woman as being in diagnosed preterm labour and offer treatment as described in sections 1.8 and 1.9.

1.7.6 If a woman in suspected preterm labour who is 30^{+0} weeks pregnant or more does not have transvaginal ultrasound measurement of cervical length or fetal fibronectin testing to exclude preterm labour, offer treatment consistent with her being in diagnosed preterm labour (see sections 1.8 and 1.9).

1.7.7 Do not use transvaginal ultrasound measurement of cervical length and fetal fibronectin testing in combination to diagnose preterm labour.

1.7.8 Ultrasound scans should be performed by healthcare professionals with training in, and experience of, transvaginal ultrasound measurement of cervical length.

1.8 Tocolysis

1.8.1 Take the following factors into account when making a decision about whether to start tocolysis:

- whether the woman is in suspected or diagnosed preterm labour
- other clinical features (for example, bleeding or infection) which may suggest that stopping labour is contraindicated
- gestational age at presentation
- likely benefit of maternal corticosteroids (see section 1.9)
- availability of neonatal care (need for transfer to another unit)
- the preference of the woman.

1.8.2 Consider nifedipine for tocolysis[3] for women between 24^{+0} and 25^{+6} weeks of pregnancy who have intact membranes and are in suspected preterm labour.

1.8.3 Offer nifedipine for tocolysis[3] to women between 26^{+0} and 33^{+6} weeks of pregnancy who have intact membranes and are in suspected or diagnosed preterm labour.

1.8.4 If nifedipine is contraindicated, offer oxytocin receptor antagonists for tocolysis.

1.8.5 Do not offer betamimetics for tocolysis.

1.9 Maternal corticosteroids

1.9.1 For women between 23^{+0} and 23^{+6} weeks of pregnancy who are in suspected or established preterm labour, are having a planned preterm birth or have P-PROM (see section 1.3), discuss with the woman (and her family members or carers as appropriate) the use of maternal corticosteroids in the context of her individual circumstances.

1.9.2 Consider maternal corticosteroids for women between 24^{+0} and 25^{+6} weeks of pregnancy who are in suspected or established preterm labour, are having a planned preterm birth or have P-PROM.

1.9.3 Offer maternal corticosteroids to women between 26^{+0} and 33^{+6} weeks of pregnancy who are in suspected, diagnosed or established preterm labour, are having a planned preterm birth or have P-PROM.

1.9.4 Consider maternal corticosteroids for women between 34^{+0} and 35^{+6} weeks of pregnancy who are in suspected, diagnosed or established preterm labour, are having a planned preterm birth or have P-PROM.

1.9.5 When offering or considering maternal corticosteroids, discuss with the woman (and her family members or carers as appropriate):

- how corticosteroids may help
- the potential risks associated with them.

1.9.6 Do not routinely offer repeat courses of maternal corticosteroids, but take into account:

- the interval since the end of last course
- gestational age
- the likelihood of birth within 48 hours.

1.10 Magnesium sulfate for neuroprotection

1.10.1 Offer intravenous magnesium sulfate for neuroprotection of the baby to women between 24^{+0} and 29^{+6} weeks of pregnancy who are:

- in established preterm labour **or**
- having a planned preterm birth within 24 hours.

1.10.2 Consider intravenous magnesium sulfate for neuroprotection of the baby for women between 30^{+0} and 33^{+6} weeks of pregnancy who are:

- in established preterm labour **or**
- having a planned preterm birth within 24 hours.

1.10.3 Give a 4 g intravenous bolus of magnesium sulfate over 15 minutes, followed by an intravenous infusion of 1 g per hour until the birth or for 24 hours (whichever is sooner).

1.10.4 For women on magnesium sulfate, monitor for clinical signs of magnesium toxicity at least every 4 hours by recording pulse, blood pressure, respiratory rate and deep tendon (for example, patellar) reflexes.

1.10.5 If a woman has or develops oliguria or other signs of renal failure:

- monitor more frequently for magnesium toxicity
- think about reducing the dose of magnesium sulfate.

1.11 Fetal monitoring

Monitoring options: cardiotocography and intermittent auscultation

1.11.1 Discuss with women in suspected, diagnosed or established preterm labour (and their family members or carers as appropriate):

- the purpose of fetal monitoring and what it involves
- the clinical decisions it informs at different gestational ages

- if appropriate, the option not to monitor the fetal heart rate (for example, at the threshold of viability).

1.11.2 Involve a senior obstetrician in discussions about whether and how to monitor the fetal heart rate for women who are between 23^{+0} and 25^{+6} weeks pregnant.

1.11.3 Explain the different fetal monitoring options to the woman (and her family members or carers as appropriate), being aware that:

- there is limited evidence about the usefulness of specific features to suggest hypoxia or acidosis in preterm babies
- the available evidence is broadly consistent with that for babies born at term (see monitoring during labour in the NICE guideline on intrapartum care)
- a normal cardiotocography trace is reassuring and indicates that the baby is coping well with labour, but an abnormal trace does not necessarily indicate that fetal hypoxia or acidosis is present.

1.11.4 Explain to the woman (and her family members or carers as appropriate) that there is an absence of evidence that using cardiotocography improves the outcomes of preterm labour for the woman or the baby compared with intermittent auscultation.

1.11.5 Offer women in established preterm labour but with no other risk factors (see monitoring during labour in the NICE guideline on intrapartum care) a choice of fetal heart rate monitoring using either:

- cardiotocography using external ultrasound **or**
- intermittent auscultation.

1.11.6 For guidance on using intermittent auscultation for fetal heart rate monitoring, see monitoring during labour in the NICE guideline on intrapartum care.

Fetal scalp electrode

1.11.7 Do not use a fetal scalp electrode for fetal heart rate monitoring if the woman is less than 34^{+0} weeks pregnant unless all of the following apply:

- it is not possible to monitor the fetal heart rate using either external cardiotocography or intermittent auscultation
- it has been discussed with a senior obstetrician
- the benefits are likely to outweigh the potential risks
- the alternatives (immediate birth, intermittent ultrasound and no monitoring) have been discussed with the woman and are unacceptable to her.

1.11.8 Discuss with the woman (and her family members or carers as appropriate) the possible use of a fetal scalp electrode between 34^{+0} and 36^{+6} weeks of pregnancy if it is not possible to monitor the fetal heart rate using either external cardiotocography or intermittent auscultation.

Fetal blood sampling

1.11.9 Do not carry out fetal blood sampling if the woman is less than 34^{+0} weeks pregnant.

1.11.10 Discuss with the woman the possible use of fetal blood sampling between 34^{+0} and 36^{+6} weeks of pregnancy if the benefits are likely to outweigh the potential risks.

1.11.11 When offering fetal blood sampling, discuss this with the woman (as described in fetal blood sampling in the NICE guideline on intrapartum care), and advise her that if a blood sample cannot be obtained a caesarean section is likely.

1.12 Mode of birth

1.12.1 Discuss the general benefits and risks of caesarean section and vaginal birth with women in suspected, diagnosed or established preterm labour and women with P-PROM (and their family members or carers as appropriate) – see planning mode of birth in the NICE guideline on caesarean section.

1.12.2 Explain to women in suspected, diagnosed or established preterm labour and women with P-PROM about the benefits and risks of caesarean section that are specific to gestational age. In particular, highlight the difficulties associated with performing a caesarean section for a preterm birth, especially the increased

likelihood of a vertical uterine incision and the implications of this for future pregnancies.

1.12.3 Explain to women in suspected, diagnosed or established preterm labour that there are no known benefits or harms for the baby from caesarean section, but the evidence is very limited.

1.12.4 Consider caesarean section for women presenting in suspected, diagnosed or established preterm labour between 26^{+0} and 36^{+6} weeks of pregnancy with breech presentation.

1.13 Timing of cord clamping for preterm babies (born vaginally or by caesarean section)

1.13.1 If a preterm baby needs to be moved away from the mother for resuscitation, or there is significant maternal bleeding:

- consider milking the cord **and**
- clamp the cord as soon as possible.

1.13.2 Wait at least 30 seconds, but no longer than 3 minutes, before clamping the cord of preterm babies if the mother and baby are stable.

1.13.3 Position the baby at or below the level of the placenta before clamping the cord.

Terms used in this guideline

Symptoms of preterm labour

A woman has presented before 37^{+0} weeks of pregnancy reporting symptoms that might be indicative of preterm labour (such as abdominal pain), but no clinical assessment (including speculum or digital vaginal examination) has taken place.

Suspected preterm labour

A woman is in suspected preterm labour if she has reported symptoms of preterm labour and has had a clinical assessment (including a speculum or digital vaginal examination) that confirms the possibility of preterm labour but rules out established labour.

Diagnosed preterm labour

A woman is in diagnosed preterm labour if she is in suspected preterm labour and has had a positive diagnostic test for preterm labour.

Established preterm labour

A woman is in established preterm labour if she has progressive cervical dilatation from 4 cm with regular contractions (see the definition of the established first stage of labour in the NICE guideline on intrapartum care).

Preterm prelabour rupture of membranes (P-PROM)

A woman is described as having P-PROM if she has ruptured membranes before 37^{+0} weeks of pregnancy but is not in established labour.

'Rescue' cervical cerclage

Cervical cerclage performed as an emergency procedure in a woman with premature cervical dilatation and often with exposed fetal membranes.

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[1] At the time of publication (November 2015), erythromycin did not have a UK marketing authorisation for use in pregnancy. 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. The summaries of product characteristics for oral erythromycin recommend different dosages. The evidence reviewed for the guideline supports a dosage of 250 mg 4 times a day for prophylaxis in women with P-PROM.

[2] Be aware that if a swab for fetal fibronectin testing is anticipated (see recommendation 1.7.5), the swab should be taken before any digital vaginal examination.

[3] Although this use is common in UK clinical practice, at the time of publication (November 2015), nifedipine 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. The suggested dosage of nifedipine (as

specified in the BNF) is a loading dose of 20 mg orally, followed by 10–20 mg 3 to 4 times daily adjusted according to uterine activity.

Context

Preterm birth is the single biggest cause of neonatal mortality and morbidity in the UK. Over 52,000 babies (around 7.3% of live births) in England and Wales in 2012 were born preterm – that is, before 37^{+0} weeks of pregnancy. There has been no decline in the preterm birth rate in the UK over the last 10 years.

Babies born preterm have high rates of early, late and postneonatal mortality, and the risk of mortality increases as gestational age at birth decreases. Babies who survive have increased rates of disability. Recent UK studies comparing cohorts born in 1995 and 2006 have shown improved rates of survival (from 40% to 53%) for extreme preterm births (born between 22 and 26 weeks). Rates of disability in survivors were largely unchanged over this time period.

The major long-term consequence of prematurity is neurodevelopmental disability. Although the risk for the individual child is greatest for those born at the earliest gestational ages, the global burden of neurodevelopmental disabilities depends on the number of babies born at each of these gestations, and so is greatest for babies born between 32 and 36 weeks, less for those born between 28 and 31 weeks, and least for those born at less than 28 weeks gestation.

Around 75% of women delivering preterm do so after preterm labour, which may or may not be preceded by preterm prelabour rupture of membranes. The remaining women delivering preterm have an elective preterm birth when this is thought to be in the fetal or maternal interest (for example, because of extreme growth retardation in the baby or maternal conditions such as pre-eclampsia).

This guideline reviews the evidence for the best way to provide treatment for women who present with symptoms and signs of preterm labour and women who are scheduled to have a preterm birth. It also reviews how preterm birth can be optimally diagnosed in symptomatic women, given that many women thought to be in preterm labour on a clinical assessment will not deliver preterm.

The guideline does not cover who should and should not have medically indicated preterm birth, or diagnostic or predictive tests in asymptomatic women.

More information

You can also see this guideline in the NICE pathway on preterm labour and birth.

To find out what NICE has said on topics related to this guideline, see our web pages on pregnancy and intrapartum care.

See also the guideline committee's discussion and the evidence reviews (in the full guideline), and information about how the guideline was developed, including details of the committee.

Recommendations for research

The guideline committee has made the following recommendations for research. The committee's full set of research recommendations is detailed in the full guideline.

1 Prophylactic cervical cerclage compared with prophylactic vaginal progesterone for preventing preterm birth

What is the clinical effectiveness of prophylactic cervical cerclage alone compared with prophylactic vaginal progesterone alone and with both strategies together for preventing preterm birth in women with a short cervix and a history of spontaneous preterm birth?

Why this is important

Preterm birth causes significant neonatal morbidity and mortality, as well as long-term disability. Therefore strategies for preventing preterm birth are important. There are recognised risk factors for preterm birth, and so interventions can be offered to women with these risk factors. Both prophylactic cervical cerclage and prophylactic vaginal progesterone are effective in preventing preterm birth in women with a short cervix and a history of preterm birth, but there is limited evidence on which is more effective, and the relative risks and benefits (including costs) of each. More randomised research is needed to compare the relative effectiveness of prophylactic cervical cerclage and prophylactic vaginal progesterone in improving both neonatal and maternal outcomes. This will help women and healthcare professionals to make an informed decision about which is the most effective prophylactic option.

2 Identifying infection in women with preterm prelabour rupture of membranes (P-PROM)

What is the diagnostic accuracy of serial C-reactive protein testing to identify chorioamnionitis in women with P-PROM?

Why this is important

Identifying infection in women with P-PROM is needed to provide best practice care. Early diagnosis of infection allows consideration of therapeutic strategies (including antibiotics and/or early birth). Effective treatment of infection is particularly important given that sepsis is a common direct cause of maternal death. There is currently limited evidence that serial C-reactive protein testing might be useful, but the Committee is aware that this strategy is in common practice.

Evidence from diagnostic studies is needed about the accuracy of serial C-reactive protein testing for identifying chorioamnionitis, which is one of the most common and serious infective complications of P-PROM.

3 Effectiveness of 'rescue' cerclage

What is the clinical effectiveness of 'rescue' cerclage in improving outcomes for women at risk of preterm birth?

Why this is important

There is some evidence from randomised studies that 'rescue' cerclage might be effective in improving neonatal outcomes in women with a dilated cervix and exposed, unruptured fetal membranes. However, there is uncertainty about the magnitude of this effect. The full consequences of this strategy and the subgroups of women at risk of preterm labour who might particularly benefit are not known. A randomised controlled trial would best address this question, but a national registry of the most critical outcomes (neonatal mortality and morbidity, maternal morbidity) could also be considered for women who did not want to participate in a randomised trial but who opted for 'rescue' cerclage.

4 Magnesium sulfate for neuroprotection: bolus plus infusion compared with bolus alone

What is the clinical effectiveness of a bolus plus infusion of magnesium sulfate compared with a bolus alone for preventing neurodevelopmental injury in babies born preterm?

Why this is important

There is evidence from randomised studies that magnesium sulfate has neuroprotective properties for the baby when given to women who will deliver preterm up to 34^{+0} weeks of pregnancy. However, there is uncertainty about the best method of administering magnesium sulfate for this purpose, with different studies using different strategies. There are significant advantages for the woman and for reducing healthcare costs if a bolus is as effective as a bolus plus infusion, because magnesium sulfate has side effects for the woman, and more monitoring is needed for infusion, with additional associated healthcare costs. A randomised controlled trial would best address this question by assessing the effects of each method on neonatal and maternal outcomes.

Implementation: getting started

This section highlights 2 areas of the preterm labour and birth guideline that could have a big impact on practice and be challenging to implement, along with the reasons why we are proposing change in these areas (given in the box at the start of each area). We identified these with the help of stakeholders and Guideline Committee members (see section 9.4 of the manual). The section also gives information on resources to help with implementation.

The challenge: diagnosing preterm labour for women with intact membranes

See recommendations 1.7.4 and 1.7.5.

The evidence reviewed for the guideline indicated that transvaginal ultrasound measurement of cervical length is the best diagnostic test for determining the likelihood of birth within 48 hours for women who are 30^{+0} weeks pregnant or more with intact membranes who, after clinical assessment, are in suspected preterm labour. Many women thought to be in preterm labour on clinical assessment will not have a preterm birth. Optimal diagnosis in women with symptoms of preterm labour ensures that preterm labour can be correctly identified and the appropriate clinical management started.

If transvaginal ultrasound measurement of cervical length is not available or not acceptable, fetal fibronectin testing should be considered for ruling out preterm birth within 48 hours. This test is useful, although it is not as good a diagnostic tool as ultrasound measurement of cervical length. Fetal fibronectin testing is a simple test that can be carried out by healthcare professionals very quickly.

Increasing availability of transvaginal ultrasound

Using transvaginal ultrasound measurement of cervical length is not part of routine antenatal care, so implementation is likely to lead to an increase in the number of scans needed. Ensuring that women have access to this diagnostic test may be challenging because of a lack of available specialist equipment and/or expertise, and investment in technology and training may be needed. Staff training will be important to ensure that transvaginal ultrasound measurements of cervical length are performed using consistent and standard criteria.

NICE is working with the Royal College of Obstetricians and Gynaecologists (RCOG) to ensure that measuring cervical length using transvaginal ultrasound is included in the ultrasound module for obstetric trainees.

To increase availability, commissioners could:

- Invest in additional ultrasound equipment, ensuring that images can be stored for audit.
- Commission a service that is able to provide cervical length scans outside normal working hours. This may be provided by on-call imaging services and/or by training healthcare professionals in obstetric units so that sufficient expertise is available at all times.
- Use the NICE resource impact assessment to work out the cost implications.

Promoting the use of fetal fibronectin testing

When transvaginal ultrasound measurement of cervical length is not available, it is not currently routine practice to use fetal fibronectin testing as a diagnostic test for determining likelihood of birth within 48 hours for women who are 30^{+0} weeks pregnant or more and in suspected preterm labour.

What can obstetric units do to help?

- Raise awareness of when fetal fibronectin testing should be used and that it is a simple test that can be carried out in 5 minutes by healthcare professionals.

The challenge: using tocolysis

See recommendations 1.8.1–1.8.5.

Giving an effective tocolytic medicine to women with intact membranes who are in suspected or diagnosed preterm labour can delay the birth. This in turn can improve neonatal outcomes.

Promoting the use of tocolysis

Clinical practice varies in terms of which women in preterm labour are offered a tocolytic medicine, when it should be given and the choice of tocolytic. The decision to offer tocolysis should take into account whether neonatal care is available on-site or whether transfer to another hospital will be needed.

To overcome this, the lead clinician for each obstetric unit could:

- Update local guidelines on managing preterm labour with regard to which women should be offered tocolytic medicines, and which tocolytics are first-line treatment.

- Use the NICE baseline assessment tool to determine current prescribing practice.
- Use bulletins to raise awareness of these recommendations.

Need more help?

Further resources are available from NICE that may help to support implementation:

- Uptake data about guideline recommendations and quality standard measures.

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Accreditation