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## PRACTICE



## GUIDELINES

## Preterm labour: summary of NICE guidance

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Preterm birth is the single biggest cause of neonatal mortality and morbidity in the UK, affecting over 52 000 babies (around 7.3% of live births) in England and Wales in 2012.<sup>1</sup> About 75% of women delivering preterm do so after preterm labour,<sup>2</sup> which is sometimes preceded by preterm prelabour membrane rupture.<sup>2</sup> A "cause" for preterm labour is not always found, but it may be associated with infection. In other cases, preterm birth may result from elective delivery.

Babies born preterm have high rates of mortality, with the risk of mortality being inversely proportional to gestational age at birth.<sup>3</sup> Babies who survive have increased rates of disability.<sup>3</sup>

This article summarises the most recent recommendations on the prevention, diagnosis, and management of preterm labour from the National Institute for Health and Care Excellence (NICE).<sup>4</sup>

### Recommendations

NICE recommendations are based on systematic reviews of best available evidence and explicit consideration of cost effectiveness. When minimal evidence is available, recommendations are based on the Guideline Development Group's experience and opinion of what constitutes good practice. Evidence levels for the recommendations are given in italic in square brackets.

### Information and support for women at risk or at preterm labour (and their family members or carers as appropriate)

- Bear in mind that the woman (and her family members or carers) may be particularly anxious. [*Based on moderate to low quality evidence from qualitative studies and the experience and opinion of the Guideline Development Group (GDG)*]

- Give information (oral and written) and support as early as possible, taking into account the likelihood of preterm birth and the status of labour. [*Based on moderate to low quality evidence from qualitative studies and the experience and opinion of the GDG*]

### Information and support for women having a planned preterm birth or who are offered treatment for preterm labour (and their family members or carers as appropriate)

- Provide 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 (such as 1 in 100).
- Explain about the neonatal care of preterm babies, including location of care.
- Explain about the immediate problems that can arise when a baby is born preterm.

[*Based on moderate to low quality evidence from qualitative studies and the experience and opinion of the GDG*]

### Prevention of preterm birth

- 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<sup>+0</sup> and 34<sup>+0</sup> weeks of pregnancy *and*
  - a transvaginal ultrasound scan carried out between 16<sup>+0</sup> and 24<sup>+0</sup> weeks of pregnancy showing a cervical length of <25 mm.

[*Based on high to very low quality evidence from randomised controlled trials*]

**What you need to know**

- To prevent preterm birth, 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<sup>+0</sup> and 34<sup>+0</sup> weeks of pregnancy *and*
  - a transvaginal ultrasound scan between 16<sup>+0</sup> and 24<sup>+0</sup> weeks of pregnancy, showing a cervical length of <25 mm.
- To diagnose preterm labour
  - consider transvaginal ultrasound measurement of cervical length to determine likelihood of birth within 48 hours for women who are ≥30<sup>+0</sup> weeks pregnant and are in suspected preterm labour. If cervical length is >15 mm, explain that she is unlikely to be in preterm labour.
- To treat preterm labour
  - offer tocolysis, corticosteroids, or magnesium sulfate to women in preterm labour, including those with a cervical length of <15 mm, depending on gestation and clinical circumstances.

**What's new in this guidance**

- Do not use diagnostic tests for preterm labour for symptomatic women who are <30<sup>+0</sup> weeks pregnant, but treat them as appropriate
- Use cervical length ultrasound for diagnosis of preterm labour for women at ≥30<sup>+0</sup> weeks of pregnancy and treat them as if they are in preterm labour if cervical length is found at ≤15 mm
- Use prophylactic progesterone or cervical cerclage to prevent preterm birth to women with a history of spontaneous preterm birth or mid-trimester loss and cervical ultrasound measurement of <25 mm at 16<sup>+0</sup> to 24<sup>+0</sup> weeks gestation
- For women in established preterm labour or having a planned preterm birth within 24 hours: use magnesium sulfate for neuroprotection between 24<sup>+0</sup> and 29<sup>+6</sup> weeks of pregnancy, and consider its use between 30<sup>+0</sup> and 33<sup>+6</sup> weeks

- Offer prophylactic vaginal progesterone to women with no history of spontaneous preterm birth or mid-trimester loss, who have a transvaginal ultrasound scan carried out between 16<sup>+0</sup> and 24<sup>+0</sup> weeks of pregnancy showing a cervical length of <25 mm. [*Based on low quality evidence from randomised controlled trials and the experience and opinion of the GDG*]
- Consider prophylactic cervical cerclage for women with a transvaginal ultrasound scan carried out between 16<sup>+0</sup> and 24<sup>+0</sup> weeks of pregnancy showing a cervical length of <25 mm, and with a history of either
  - prelabour rupture of membranes in a previous pregnancy *or*
  - cervical trauma.

[*Based on moderate to very low quality evidence from randomised controlled trials and the experience and opinion of the GDG*]

**Rescue cerclage**

- Do not offer “rescue” cervical cerclage to women with signs of infection, active vaginal bleeding, or uterine contractions.
- Consider rescue cervical cerclage for women between 16<sup>+0</sup> and 27<sup>+6</sup> weeks of pregnancy with a dilated cervix and exposed, unruptured fetal membranes.

[*Based on low to very low quality evidence from randomised controlled trials and the experience and opinion of the GDG*]

**Fetal monitoring options (cardiotocography and intermittent auscultation)**

- For women in preterm labour, discuss
  - 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).

[*Based on the experience and opinion of the GDG*]

- Offer women in established preterm labour but with no other risk factors a choice of fetal heart rate monitoring using either
  - cardiotocography using external ultrasound *or*
  - intermittent auscultation.<sup>5</sup>

[*Based on moderate to very low quality evidence from randomised controlled trials and the experience and opinion of the GDG*]

**Mode of birth for women likely to deliver preterm (suspected, diagnosed, or established preterm labour)**

- Discuss the general benefits and risks of caesarean section and vaginal birth with women likely to deliver preterm.<sup>6</sup> [*Based on the experience and opinion of the GDG*]
- Explain the benefits and risks of caesarean section that are specific to gestational age. 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. [*Based on the experience and opinion of the GDG*]
- Explain that there are no known benefits or harms for the baby from caesarean section, but the evidence is very limited. [*Based on very low quality evidence from randomised controlled trials the experience and opinion of the GDG*]
- For women between 26<sup>+0</sup> and 36<sup>+6</sup> weeks of pregnancy with breech presentation, consider caesarean section. [*Based on very low quality evidence from randomised controlled trials and the experience and opinion of the GDG*]

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

- 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. [*Based on low to very low quality evidence from randomised controlled trials and the experience and opinion of the GDG*]

## Overcoming barriers

This guideline recommends strategies to reduce risks in women who are at high likelihood of preterm delivery. One of the main barriers to the implementation of this guidance is the availability of transvaginal ultrasound scans to diagnose preterm labour, and thus facilitate treatment and transfer to a place where appropriate neonatal intensive care can be provided, a strategy known to improve rates of survival for the baby. There is also currently variation in clinical practice in use of tocolytic agents, uncertainty as to which women will benefit, when it should be given, and the choice of tocolytic. The appropriate use of tocolysis will delay preterm delivery and allow additional antenatal strategies to improve outcomes for babies born preterm.

The members of the Guideline Development Group were: Judi Barratt, Paul Eunson, Jane Hawdon, Jane Norman (chair), Philip Owen, Jane Plumb, Farrah Pradhan, Marianne Rowntree, Meekai To, Martin Ward Platt, and Louise Weaver-Lowe. The members of the National Collaborating Centre for Women's and Children's Health technical team were: Grammati Sarri, Melanie Davies (from December 2014), Anne Carty, Maryam Gholitabar, Shona Burman-Roy, Hugo Pedder, Paul Jacklin, and Zosia Beckles.

Contributors: All authors contributed to the initial draft, helped revise the manuscript, and approved the final version for publication. GS is guarantor.

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We declare the following interests based on NICE's policy on conflicts of interests (available at [www.nice.org.uk/Media/Default/About/Who-we-are/Policies-and-procedures/code-of-practice-for-declaring-and-managing-conflicts-of-interest.pdf](http://www.nice.org.uk/Media/Default/About/Who-we-are/Policies-and-procedures/code-of-practice-for-declaring-and-managing-conflicts-of-interest.pdf)): JN has been remunerated for chairing NICE guideline development committees and has research grants from government bodies and charities to investigate the causes and treatment of preterm birth, including research funding for a large trial of the effect of progesterone on preterm birth prophylaxis. MD receives no direct funding for her advisory or educational roles. The authors' full statements can be viewed at [www.bmj.com/content/bmj/351/bmj.h6283/related#datasupp](http://www.bmj.com/content/bmj/351/bmj.h6283/related#datasupp).

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### How patients were involved in the creation of this article\*

Committee members involved in this guideline included three lay members, who contributed to the formulation of the recommendations summarised here.

### Further information on the guidance

This guideline was commissioned with the aim to standardise the care of women in preterm labour and address the knowledge gap regarding the management of preterm labour.

#### *Guidelines into practice*

- Audit the requests for diagnostic tests for preterm labour in women presenting with symptoms of preterm labour at  $\geq 30$  weeks of pregnancy. Do you need to change your practice by instead treating all symptomatic women who are pregnant  $< 30$  weeks as they were diagnosed for preterm labour?
- Audit the prescription of antibiotics for women with preterm prelabour rupture of membranes. Were all women offered antibiotic prophylaxis (erythromycin 250 mg four times a day for a maximum of 10 days)?
- Audit the use of magnesium sulfate for women who are pregnant  $\leq 24$  weeks. For women at later gestation and in established preterm labour or having a planned preterm birth within 24 hours, offer magnesium sulfate only if between 24<sup>+0</sup> and 29<sup>+6</sup> weeks pregnant; consider its use if between 30 and 33<sup>+6</sup> weeks pregnant.

#### *Methods*

This guidance was developed by the National Collaborating Centre for Women's and Children's Health in accordance with NICE guideline development methods ([www.nice.org.uk/media/default/about/what-we-do/our-programmes/developing-nice-guidelines-the-manual.pdf](http://www.nice.org.uk/media/default/about/what-we-do/our-programmes/developing-nice-guidelines-the-manual.pdf)). A Guideline Development Group was established by the National Collaborating Centre for Women's and Children's Health, which incorporated healthcare professionals (including obstetricians and gynaecologists, midwives, neonatal nurses, and neonatologists) and lay members. The GDG identified relevant clinical questions, collected and appraised clinical evidence, and evaluated the cost effectiveness of proposed interventions where possible. A network meta-analysis was undertaken to identify the clinical effectiveness of different types of treatments for tocolysis which fitted the cost effectiveness analysis.

The draft guideline underwent a public consultation in which stakeholder organisations were invited to comment; the GDG then took all comments into consideration when producing the final version of the guideline.

Four different versions of this guideline have been produced: a full version containing all the evidence, the process undertaken to develop the recommendations, and all the recommendations; a care pathway; a version containing a list of all the recommendations, known as the "Short guideline"; and a version for the public. All of these versions are available from the NICE website ([www.nice.org.uk/guidance/ng25](http://www.nice.org.uk/guidance/ng25)).

Updates of the guideline will be produced as part of NICE's guideline development programme.

#### *Future research*

1. For women with a short cervix and a history of spontaneous preterm birth, how effective is prophylactic cervical cerclage alone compared with prophylactic vaginal progesterone alone and with both strategies together, in preventing preterm birth?
2. What is the diagnostic accuracy of serial C reactive protein testing to identify chorioamnionitis in women with preterm prelabour membrane rupture?
3. For women at risk of preterm birth, what is the clinical effectiveness of rescue cerclage?
4. 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?