Spontaneous Preterm Labour

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

Introduction

This guideline outlines the management of spontaneous labour in gestations <37 weeks

This guideline is for use by the following staff groups:

Midwifery and Obstetrics

Lead Clinician(s)

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Key amendments to this guideline

Date	Amendment	Approved by:
15th July 2022	Change to use of FFN, QUIPs app update to steroids and antibiotics in line with RCOG and GBS guideline	Maternity Governance Meeting/ MSC
October 2023	Updated in line with Saving Babies Lives V3. MgSO4 recommendation changed from 24 weeks to 22 weeks' gestation.	Maternity Governance Meeting

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Introduction

This guideline is for the management of all women presenting in suspected or established preterm labour (before 37 weeks gestation). **Preterm birth is a leading cause of perinatal morbidity and mortality and requires careful management**. It affects about 8.2% of all live births in the UK.

Of those that presents with symptoms of threatened preterm labour, up to 70% will not deliver until Term and many cases have no obvious risk factors. Therefore, clinical assessment alone has a relative poor predictive value. Use of fetal fibronectin test (fFN)/ ActimPartus or cervical length measurements which have high negative predictive value are sometimes very useful adjuncts to help make a diagnosis and avoid unnecessary interventions and admissions.

Interventions that are proven to be of value in improving perinatal outcomes includes corticosteroids, Magnesium Sulphate, delayed cord clamping and delivery within a unit with the appropriate level of neonatal intensive care. Tocolysis has not been shown to improve perinatal outcomes but can delay delivery for >48 hours and therefore, should be considered if need to administer antenatal corticosteroids or need intra-uterine transfer.

1. Definition

- **Preterm labour** is defined as established labour before 37 weeks of gestation.

- **Threatened preterm labour** is when a pregnant woman has painful contractions before 37weeks of gestation and is not in established Labour.

2. Risk Factors:

- Previous preterm labour
- Cervical incompetence e.g. cone biopsy or other cervical surgery.
- Abnormal uterine anatomy
- Smoking and substance misuse
- Low BMI.
- Multiple pregnancy
- Local vaginal infection. (consider vaginal swabs at booking if past history of preterm labour)
- Severe systemic maternal illness
- Antepartum haemorrhage (APH)
- Intrauterine growth retardation (IUGR)
- Polyhydramnios
- Fetal anomaly
- Invasive fetal diagnostic tests
- Untreated UTIs

However, it is important to remember that many cases of spontaneous preterm labour have no identifiable antenatal risk factors.

See separate guidelines for prevention of preterm labour

3. Clinical Assessment (see Appendix 1 for flow chart summary)

- Take a detailed clinical history including risk factors
- Check maternal observations; temperature, pulse & blood pressure.
- Check urine dipstick +/- MSU (previous MSU results should be reviewed)
- Measure and plot SFH on GROW chart (if not done within last 2 weeks)
- Confirm presence of fetal heart and perform CTG (Intermittent Auscultation if <26 weeks).
- Ascertain presentation of fetus abdominally – if uncertain / or non-cephalic presentation confirm by scan
- HVS should also be taken at the time of the speculum examination

To confirm the diagnosis:

- Speculum assessment by a medical staff to assess for cervical dilatation.
- A digital vaginal examination should be performed if the extent of cervical dilatation cannot be assessed on speculum.
    - if pre-labour rupture of membranes has occurred avoid digital vaginal examination

- If the cervix is >/= 2cm dilated treat as established preterm labour.

- If the cervix is <2cm dilated and there are signs or symptoms of preterm birth, no active bleeding and no evidence of rupture of membranes, then it is recommended to use Quantitative Fetal Fibronectin to help guide management between 24 and 34weeks gestation (It can be used between 22-23+6 weeks if a decision has been made for active management).
  This can be used alone or with the QUIPPS App to guide management.
  (See Appendix 3 for guidance on how to use FFN)
    - If FFN <200ng/ml or predication app <5% risk in 7 days consider alternative diagnosis. If symptoms mild discharge home.
    - If FFN >200ng/ml or prediction app >/= 5% risk in 7 days admit woman and manage as below. Consider IUT if applicable.

- Evidence suggests that if preterm labour is suspected at 30weeks gestation or more, transvaginal ultrasound measurement of cervical length can be used as a diagnostic test.
    - A cervical length of 15mm or less indicates preterm labour.

  For those that have been trained in cervical length scanning this can be used in conjunction with FFN to ascertain risk of preterm labour.

In women with a cervical cerclage FFN and the QUIPPS app can be used.
However, all these women should be considered high risk for PTL and admitted. If FFN >200 or the prediction app >/= 5% in 7 days and the woman is contracting the cerclage should be removed.
If FFN <200 or prediction app <5% risk in 7 days the woman should still be admitted for a period of observation and steroids/magnesium sulphate considered.

4. Management:

It is important to assess the clinical situation carefully and not to perform inappropriate interventions such as the prolonged use of tocolysis or caesarean section. If the diagnosis is not very clear, the patient can be admitted for a short period of close observation before further management plan is made.

I. Communication

Share and discuss information with the women in a manner that enables informed choice, consent and also supports women centred care.

- **Give information (oral & written) and support as early as possible, taking into account the likelihood of preterm birth and the status of labour.**

- The neonatologist should speak with the parents and discuss their views and wishes on neonatal resuscitation. This is especially important at extreme prematurity when the risks are highest. The parents should also be given information regarding the likelihood of survival, short term and long term outcomes, the potential immediate complications and what the care of a preterm infant involves.

See **Appendix 2** regarding: survival and morbidity rates at preterm gestations; and the management of Labour at <24 weeks gestation.

Any intervention prior to 24 weeks needs to be made after careful discussion with the MDT and in conjunction with the parents.

II. Steroids

There is strong evidence that maternal steroids reduced the incidence and severity of respiratory distress syndrome, intraventricular haemorrhage, necrotising enterocolitis and neonatal death. Therefore, steroids should be given if preterm Labour is diagnosed or strongly suspected

- **The recommended gestation range for giving maternal corticosteroids is 24 to 34+6 weeks.**
    - At <24 weeks- may be used at individual instigation of a Consultant (Obs/Neonatologist).
    - 24+0 and 34+6 weeks- **Offer** steroids
    - 35+0 and 36+6 weeks – **Consider** balance of risks & benefits (short term respiratory benefits for the neonate but increased likelihood of neonatal hypoglycaemia)

- **Dose**:
    - In the UK it is recommended that 24 mg dexamethasone phosphate is given intramuscularly in two divided doses of 12 mg 24 hours apart or four divided doses of 6 mg 12 hours apart.
    - An alternative is 24 mg betamethasone given intramuscularly in two divided doses of 12 mg 24 hours apart.
    - The 2nd dose of steroids should be administered 24 hours after the first dose, but can be given between 12 and 24 hours if circumstances dictate this to be more practical.

- Diabetic women receiving steroids are at risk of hyperglycaemia. For these women steroids should be given in liaison with diabetic team and will likely need sliding scale.
- There is no robust clinical evidence to support repeat doses of steroid in pregnancy. This may be considered taking into account the current gestation, timing of previous steroid use and likelihood of delivery within 48 hours (Consultant decision).
- Before administration of steroids, discuss with consultant obstetrician if:
    - signs of infection
    - woman is diabetic
    - needs second course of steroids (a course of steroids should be completed between 24hours – 7 days prior to delivery for maximum benefit)

III. Magnesium sulphate

- **Magnesium sulphate for neuroprotection should be used in all women who are considered likely to delivery within <24 hours and are preterm.**
    - It should be **offered** between **22 weeks** and **29+6.**
    - **Considered** between **30** and **33+6 weeks.**

- Give a 4 g intravenous bolus of magnesium sulphate over 15 minutes, followed by an intravenous infusion of 1 g per hour until the birth or for 24 hours (whichever is sooner).
- Patients on magnesium sulphate should be monitored for clinical signs of magnesium toxicity. Observations (HR, RR, BP and urine output) as well as deep tendon reflexes (e.g. patella) should be done at least every 4 hours
- If a woman has or develops oliguria or other signs of renal failure: more frequent monitoring is required and consideration regarding reducing the dose of the magnesium sulphate.
- CTG monitoring during a magnesium sulphate infusion should be a consultant decision and clearly documented in the care plan if it is required.

IV. Tocolysis

Use of a tocolytic drug has no significant effect on preterm birth and no clear effect on perinatal or neonatal morbidity. However, short prolongation of the pregnancy is considered beneficial when time gained will be utilised for administration of antenatal corticosteroids or In-Utero Transfer.

See Tocolysis guidelines for details (*please add link here)

v. Antibiotics

- If PPROM, Oral erythromycin 250 mg 6 hourly for maximum of 10 days, or until labour is established
- **Intrapartum antibiotic prophylaxis (IAP**) **for** Group B Streptococcal (**GBS**) **infection is recommended for all women in confirmed preterm labour** (irrespective of GBS status or membrane status).

    - GBS infection is a risk factor for Preterm delivery. Furthermore, there is a significantly increased mortality rate from infections for these infants (20-30% versus 2-3% at term).

- IAP should not be given for threatened preterm labour.

- Benzylpenicillin is the antibiotic of choice for IAP.
- For patients allergic to penicillin, it is advised to use cephalosporin if it is only a minor allergy and Vancomycin if it is a severe allergy – see separate GBS guideline. Previous swab should be checked for sensitivities.

VI. Fetal monitoring options

- For women in preterm labour, discuss
  - the purpose of fetal monitoring and what it involves
  - the clinical decisions it informs at different gestational ages and the limitations in early gestation
  - If appropriate, the option not to monitor the fetal heart rate (for example, at the threshold of viability).

- For women who are > 25+6 weeks pregnant and in established preterm labour:
  - Offer intermittent auscultation (IA) for women with no other risk factors as there is an absence of evidence that using cardiotocography (CTG) improves the outcomes of preterm labour for the woman or the baby compared with IA
  - **Offer continuous CTG monitoring for women with any other risk factor**

- **FSE should NOT be used when less than 34 weeks**
- **Do not perform FBS before 34 weeks.**

- For women who are between 23+0 and 25+6 weeks pregnant,
  - It is important that the woman understands the limitations of continuous fetal monitoring at this gestation (there is limited evidence about the usefulness of specific CTG features to suggest hypoxia or acidosis. A normal CTG trace is reassuring but an abnormal trace does not necessarily indicate that fetal hypoxia or acidosis is present) and the implications of intervention (e.g. need for Caesarean section which will likely be classical and may not necessarily reduce the trauma to the fetus and the implications of this for future pregnancies.)
  - Therefore involve the woman and a senior obstetrician in discussions about fetal monitoring
    (1) whether to monitor or not
    (2) how to monitor (It is reasonable to auscultate fetal heart on admission and where clinical situation changes unless stated otherwise in the management plan)
    (3) frequency of monitoring

VII. In-Utero Transfer

Neonatal outcomes are improved if preterm births occur in centres that manage high volumes of preterm newborns with an appropriate neonatal unit (NNU).

- **As WRH only has a level 2 NNU, considerations should be made for in—utero transfer of all singleton preterm labours < 27weeks gestation, all multiples <28 weeks and all babies <800g. See IUT guideline.**
- It should be a **consultant decision** after assessing the case and the benefit: risk ratio.
- If clinically appropriate use Tocolysis to allow in-utero transfer. See Tocolysis Guideline.
- Discuss with the patient and family about the benefits of transfer and also discuss the limited resuscitation if births occur en-route.

VIII. Mode of birth

- Decide mode of delivery on individual basis based on gestation, presentation and other feta-maternal risks.
- 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.
- For women between 26+0 and 36+6 weeks of pregnancy with breech presentation, consider caesarean section.
- Otherwise, it will generally be recommended to aim for vaginal delivery unless there are other Obstetric indications.

IX. Timing of cord clamping for preterm babies.

- If the baby and mother are stable, delayed cord clamping should be promoted for at least 60 seconds as per BAPM recommendations.

X. **Avoid hypothermia** (Temperature < 36.5 °C)

Preterm infants are at increased risk of Hypothermia and this is associated with increased morbidity and mortality. Therefore, every effort should be made to minimise this.

- **For gestation 24 to 34 weeks- ensure theatre temperature is at least 25 °C at time of delivery**.
- Use fan heater on labour ward to warm delivery room to similar temperature.
- Pre-warm resuscitaire using radiant warmer
- Use transwarmer on resuscitaire for deliveries at 28weeks or less.
- Gestation < 32 weeks- place baby into plastic bag on resuscitaire, put on hat
- Gestation = or > 32 weeks- dry baby and remove wet towels. Wrap baby in dry towels and put on a hat. Keep warm!

Appendix 1

West Midlands Preterm Birth Symptomatic Assessment Pathway

Admission with signs and symptoms of preterm birth between 22 –34 weeks*
Clinical history and examination.
Perform:

- Baseline maternal observations.
- An abdominal palpation
- Auscultate fetal heart
- Urine dipstick +/- MSU

Commence CTG if >26 weeks

* Between 22-23+6 weeks applicable if decision for active management.

Speculum examination

Evidence of ruptured membranes

In utero transfer and /or antenatal optimisation as per national guidelines

If cervix >/= 2cm dilated:

Treat as established preterm labour.

Needs antenatal optimisation as per BAPM guidelines including IUT if appropriate

If cervix < 2cm dilated:
No active bleeding and no evidence of ruptured membranes -proceed to FFN.

If active bleeding or evidence of ruptured membranes consider antenatal optimisation and in utero transfer if appropriate

Fetal Fibronectin Test

FFN < 200ng/ml or prediction app < 5% risk in 7 days

Consider alternative diagnosis, if symptoms mild discharge home.

FFN >/= 200ng/ml or prediction app >/= 5% risk in 7 days

Admission is required

Women whose neonates would require neonatal intensive care (<27 weeks singleton or <28 weeks for multiple or <800gm as suggested by BAPM) need in-utero transfer.

Additional antenatal optimisation should be at the discretion of the medical team.

Management at the receiving unit should include further evaluation of ongoing risk and at least 72 hours observation before discharge.

Appendix 2.

Survival and morbidity rates at preterm gestations

The chances of survival of a preterm baby are highly dependent on gestation.
Intact survival is rare before 24 weeks. Premature babies of 24 and 25 weeks of gestation are at high risk for death or significant handicap, with 26 weeks being the earliest time when a good outcome is more likely than not.
Gestations of 27 and 28 weeks are generally associated with more than 90% survival with more than 90% of survivors having no significant handicap.
Survival and handicap rates at 34 weeks and beyond are similar to those at term.

In general regarding morbidity rates, it approximately doubles for every week below 38 weeks gestational age that a baby is born (38 weeks: 3.3%; 37 weeks: 5.9%; 36 weeks: 12.4%; 35 weeks: 25%; 34 weeks: 51.2%).

<23 weeks gestation

The management of cases of threatened preterm labour at less than 23 weeks should take place in the consultant obstetric unit. There is no requirement for transfer to centres with neonatal facilities. It is vital that patients are given accurate information and have realistic expectations of the management of their baby. Babies born before 23 weeks will not be admitted to a neonatal unit and will be given comfort care with emotional support to the family during the difficult process of miscarriage (if the baby is born with no signs of life) or neonatal death and bereavement. Emotional support during bereavement is best delivered locally, and can be provided equally well in small and large hospitals.
Consultants in units without neonatal intensive care may wish to discuss cases with colleagues working at other centres in the network. The expectation will be that case less than 23 weeks will be considered non-viable and will only be transferred once 23 weeks has been achieved.

23 weeks of gestation

The current area of uncertainty in extreme prematurity is 23 weeks gestation. This covers 23+0 to 23+6 weeks of gestation as calculated from the final due date following an early dating scan. The majority of babies given full neonatal intensive care following birth at this gestation will either die or will have significant and serious handicap. Optimal management of these cases involves individualised care taking into account all relevant factors. The current poor results for babies of 23 weeks gestation may be improved by concentrating resources and expertise. This guideline cannot define the cases where neonatal intensive care is the best treatment option. A full and frank discussion with the parents must be undertaken if delivery at 23 weeks is anticipated. If after careful counselling by an experienced neonatologist and, despite fully understanding the likely outcomes, the parents are still keen to pursue active and intensive management the care should be transferred to a level 3 neonatal intensive care unit within the network.

Appendix 3 Rapid Fetal Fibronectin Perilynx Quick Reference guide

Patients eligible for FFN

- Women are between 24 & 34 weeks. (22 - 23+6 weeks if applicable and decision for active management)
- Women are tightening or contracting & there are no signs of cervical dilatation on speculum.
- There is no evidence of ruptured membranes.
- There is no moderate or heavy bleeding or suspected placental abruption or placenta praevia.
- Cervical Cerclage (Please see note in main text for specific advise around use of fFN in cervical cerclage)

Patients NOT eligible for FFN

- Cervical dilatation more than 2 cm
- Rupture of amniotic membranes
- Placenta Praevia.
- Moderate or gross vaginal bleeding.

Specimens should be collected prior to:

- Digital cervical exam
- Collection of culture specimens
- Vaginal probe USS exams
- Do not contaminate specimen with gels.

Patient Testing

STEP 1

During speculum examination (warm water lubrication only), lightly rotate the supplied swab across the posterior fornix of the vagina for 10 seconds to absorb cervico-vaginal secretions.

STEP 2

Remove swab and immerse tip in buffer. Gently mix the swab in the buffer solution for 10 seconds and remove if the analysis of your sample is to be performed immediately. Your sample can now be analysed.

STEP 3

- **Enter User ID, Press 'NEXT'**
- **Enter Rapid fFN 10Q Cassette Lot number and press 'NEXT'**
- **Enter Patient ID and press 'NEXT'**
- **Insert the Rapid fFN 10Q Cassette**
- **Pipette 0.2ml (200µl) from the sample collected in the buffer solution**
- **Press 'NEXT'**

STEP 4

- **Pipette the sample into the well of the Rapid fFN 10Q Cassette and press 'START TEST'**
- **Walk away**

STEP 5

- **Internal Quality Control results can be found on the print out**
- **The fFN concentration will be displayed and printed in 10 minutes**
- **A permanent record is now available for patient notes.**

The fFN results should then be entered in the QUIPP app (if being used) to calculate the risk of Spontaneous preterm delivery.