Ref:MM194

Management of Pre Labour Rupture of Membranes below 37 Weeks Gestation (PPROM) Guideline

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Guidelines Definition

Clinical guidelines are systemically developed statements that assist clinicians and patients in making decisions about appropriate treatments for specific conditions.

They allow deviation from a prescribed pathway according to the individual circumstances and where reasons can be clearly demonstrated and documented.

Minor Amendments

If a minor change is required to the document, which does not require a full review please identify the change below and update the version number.

Type of change	Why change made	Page number	Date of change	Version 1 to 1.1	Name of responsible person

Equality Impact Assessment Statement

This Procedure has been subject to a full equality assessment and no impact has been identified.

Related Guidelines

- Antenatal Corticosteroids
- Management of Pre term labour
- Triage

CONTENTS

1. Introduction

Prolonged premature rupture of membranes (PPROM) is defined as spontaneous rupture of the membranes before the onset of labour prior to 37 weeks gestation (24+0 to 36+6 weeks). It complicates up to 3% of all singleton pregnancies and is associated with over 30-40% of preterm births.

Risk factors for PPROM include intra-amniotic infection, placental abruption and invasive uterine procedures (e.g. amniocentesis, cordocentesis, chorionic villus sampling, cervical cerclage).

Women with PPROM have a 50% chance of going into labour within 24 to 48 hours and 70 to 90% chance within 7 days. The median latency to delivery with PPROM is 7 days but tends to shorten when diagnosis is made at a later gestational age. Between 24 and 28 weeks gestation the median latency period before birth is 8-10 days, decreasing to 5 days after 31 weeks.

PPROM is associated with an increase in perinatal mortality and an increase in neonatal morbidity. Perinatal complications include the following but depend on gestational age at diagnosis:

- Sepsis and infection
- Intraventricular haemorrhage
- Pulmonary hypoplasia and respiratory distress syndrome
- Skeletal deformities
- Cord prolapse
- Malpresentation

2. Initial Assessment and Diagnosis

Diagnosis of PPROM is made on the basis of maternal history followed by sterile speculum examination demonstrating liquor.

The role of ultrasound assessment of amniotic fluid volume is unclear.
Chorioamnionitis can result from an ascending infection following PPROM and can subsequently result in fetal and neonatal infection. A combination of clinical assessment, maternal blood tests and fetal heart rate should be used to diagnose chorioamnionitis. These parameters should not be used in isolation.

Observations
Prior to being seen, the patient should have baseline observations performed for temperature, pulse, blood pressure (BP), respirations and O2 saturation. These should be recorded on the Modified Obstetric Early

Warning Score (MOEWS chart. Urinalysis should also be performed on a midstream sample.
Fetal heart rate should be recorded and cardiotocograph (CTG) performed if at appropriate gestation.

History
On admission note and document on the admission assessment pro forma;

- Time of suspected rupture of membranes
- Type, colour and amount of vaginal fluid loss
- Signs of chorioamnionitis including 'offensive smelling' or abnormal vaginal discharge, lower abdominal pain or uterine tenderness, maternal fever or malaise, reduced fetal movements and fetal tachycardia.
- Presence of known group B streptococcus (GBS) infection

Consider the following differential diagnoses:

- Leakage of urine (incontinence)
- Physiological vaginal discharge
- Bacterial infection e.g. bacterial vaginosis
- Cervical mucous (show) which may be a sign of impending labour

Abdominal Palpation
Carry out abdominal palpation as a routine. Depending on the gestation it may be appropriate to measure symphysial fundal height (SFH) and check presentation. Note any abdominal tenderness, which may indicate infection.

The woman should be reviewed firstly by a gynae midwifery practitioner (GMP) or senior house officer (SHO), who should consider / perform the tests as outlined below. Review and plan of care should then be carried out by a senior obstetrician.

Vaginal Examination (Speculum)
Perform a sterile speculum examination. Observe for a pooling of amniotic fluid in the posterior vaginal fornix or clear fluid passing through the cervical canal. Obtain a high vaginal swab (HVS) for culture and sensitivity.
Digital examination should not be performed.

NB. Neither Actim Partus nor Fetal Fibronectin testing can be performed in the presence of ruptured membranes and are not appropriate if liquor is seen.

Pathology tests
- Full blood count (FBC) with attention to white blood cell count
- C-reactive protein (CRP)
- High vaginal swab (HVS)

- Midstream Urine sample (MSU)

The results of these tests should not be used in isolation to confirm or exclude the presence of infection.

3. Management of Confirmed PPROM

Management is guided by gestational age, presence of infection, signs of impending labour and evidence of fetal compromise. Tocolysis is not recommended as it increases the risk of chorioamnionitis and is associated with poorer perinatal outcomes.

Antibiotic Administration
Erythromycin 250mg QDS should be given orally for 10 days following diagnosis of PPROM, or until the woman is in established labour, whichever is sooner. Microbiology advice should be sought for any patient with a macrolide allergy.

Amoxicillin and Co-amoxiclav (Augmentin) should be avoided due to the association with neonatal necrotising enterocolitis (NEC).

The use of antibiotics reduces the risk of chorioamnionitis and prolongs interval to delivery. The delay in onset of labour may allow sufficient time for effective prophylactic corticosteroids. Rates of neonatal infection, use of surfactant, oxygen requirements and abnormal cerebral ultrasound prior to discharge were also lower.

If the woman has a positive screening result for Group B Streptococcus (GBS) see CTMUHB GBS Guideline. It may be appropriate to expedite delivery.

Corticosteroid Administration
Between 24+0 and 33+6 weeks of gestation corticosteroids (2 doses of betamethasome 12mg i.m. 24 hours apart) should be offered.
Between 34+0 and 35+6 corticosteroids should be considered.

Evidence supports the use of a course of antenatal corticosteroids to accelerate fetal lung maturation in women with PPROM. It also reduces the risk of respiratory distress syndrome and cerebroventricular haemorrhage. No difference has been shown in rates of NEC, chorioamnionitis or neonatal sepsis, low APGAR scores or perinatal mortality.

Full discussion of risks and benefits should take place prior to administration of steroids.

Repeat courses are not routinely advised but interval since last course, gestational age and likelihood of delivery within 48 hours should be taken into account.

Magnesium Sulphate ($MgSO_4$)
Between 24+0 and 29+6 weeks of gestation, where labour is established or anticipated to establish within 24 hours, intravenous $MgSO_4$ should be offered.

Between 30+0 and 33+6 weeks of gestation its administration should be considered and discussed with a consultant obstetrician.

$MgSO_4$ should be administered for 24 hours or until the birth (whichever is sooner). This reduces the rates of cerebral palsy and motor dysfunction in the neonate.

Consult separate CTM UHB guidance for the regime and guidance on maternal monitoring.

Tocolysis
Tocolysis is not recommended after a diagnosis of PPROM as it is associated with an increase in maternal chorioamnionitis without improved neonatal outcomes.

Neonatal Input
Neonatologists should be informed when diagnosis of PPROM is made and the woman should be given a chance to meet with them antenatally to discuss their baby's care.

If delivery is anticipated the neonatal unit must be informed to ensure appropriate staff and facilities are available.

If the woman is between 24+0 and 31+6 then transfer to a unit with level 2 neonatal care should be arranged.

4. Ongoing Antenatal Care in the Inpatient Setting

After initial diagnosis of PPROM the woman should be admitted for:

- 4 hourly observations to include HR, BP, Temp, RR. Must be recorded on MOEWS Chart.
- Twice daily CTG monitoring/FH auscultation.
- The woman should be advised to report and signs or symptoms of infection.
- Ultrasound assessment of the fetus for amniotic fluid index and if not performed in the past 2 week's also fetal biometry.

NB. Unless otherwise clinically indicated, night-time observations need not be performed 4 hourly, although there should be no more than 8 hours between readings.

Women and partners should be offered additional emotional support.
A woman should only be considered for outpatient management after 24-48 hours of inpatient observation, following senior obstetric review and if certain criteria are met:

- ✓ Close accessibility to the hospital with support at home and good transport.
- ✓ Woman's preferences taken into account.
- ✓ Gestation, presentation and engagement.
- ✓ Absence of signs of threatened premature labour (bleeding, uterine activity, cervical dilatation, amniotic fluid volume).
- ✓ No evidence of infection (clinical and laboratory markers)
- ✓ Absence of maternal or fetal risk factors.
- ✓ Absence of fetal compromise.

Women with PPROM <26/40 and malpresentation (including breech presentation) and oligohydramnios must be offered inpatient monitoring as this combination of risk factors conveys the highest risk of complications such as placental abruption, cord prolapse, delivery outside of hospital and fetal or neonatal death.

5. Ongoing Antenatal Care in the Community Setting

If a woman is deemed suitable for outpatient management she should:

o Be advised of the symptoms of chorioamnionitis.
o Attend twice weekly to day assessment unit (see below).
o Attend an antenatal clinic appointment for Obstetric Consultant review and ongoing plan of care.
o Monitor her temperature at home. Instruction and demonstration of temperature taking procedure should be performed and documented prior to discharge. The woman should be advised to contact the acute service if she has a temperature of above 37^0C.
o Wear sanitary pads not tampons, and return to hospital if discharge/liquor becomes offensive or changes colour.
o Have showers rather than baths, and avoid swimming and sexual intercourse.
o Monitor fetal movements and contact a midwife if fetal movements are altered.
o Return to the hospital immediately if any bleeding, contractions, cramping, abdominal or back pain, if feeling generally unwell or if concerned.

The RCOG patient information leaflet should be given. A PPROM Surveillance form can also be given to the woman to complete if she would find this a helpful prompt. See Appendix A.

6. Outpatient Fetal Surveillance

There is no clear evidence on the optimum frequency to perform fetal surveillance tests for women with PPROM. The frequency of tests is adjusted according to the maternal and fetal clinical situation. Most clinicians recommend growth ultrasound fortnightly, and weekly amniotic fluid index (AFI) and Doppler, though this is not supported by evidence.

7. Assessment in DAU (twice weekly)

Care should be planned according to individual need. FBC and CRP should be taken at least weekly, and interpreted as part of full clinical picture due to it's poor sensitivity and specificity.

A full set of observations should be recorded on the MOEWS Chart at each visit.

CTG should be performed at each visit. Cardiotogography is useful as tachycardia is used in the definition of clinical chorioamnionitis. Senior obstetric review should be sought in the case of:

- Any CTG abnormalities
- Pyrexia >37.5^{0}C
- Maternal tachycardia >100bpm
- Vaginal loss with is offensive or discoloured
- Raised inflammatory markers (WCC >17, CRP >10)
- AFI <2cm
- Fetal biometry <10th centile or static growth
- Reversed or absent EDF (end diastolic flow)
- Abnormal Doppler (RI, PI)
- Positive HVS or MSU

High vaginal swab should not routinely be repeated after initial assessment.

8. Timing of Birth

Women with PPROM with no contraindications to continuing the pregnancy should be offered expectant management with careful monitoring until 37+0 gestation.

Timing of birth should be discussed with each woman on an individual basis with careful consideration given to patient preference, ongoing clinical assessment and gestation at PPROM diagnosis.

9. Subsequent pregnancy following PPROM

In a future pregnancy following PPROM women should be cared for by a consultant obstetrician. The risk of recurrent PPROM is increased with an Odds Ratio of 8.7. Modifiable risk factors such as smoking should be addressed and genital tract screening for infection can be considered. Consideration should also be given to serial scans (2-4 weekly) for cervical length between 16 and 24 weeks of gestation.

10. Auditable Standards

Proportion of women with PPROM receiving erythromycin for 10 days or until in established labour (100%).

Proportion of women with PPROM between 24+0 and 33+6 offered corticosteroids (100%).

Proportion of women Less than 30+0 who are offered magnesium sulphate within 24 hours prior to giving birth (100%).

Proportion of women with PPROM who are given the opportunity to discuss their care with a neonatologist (100%).

Proportion of women with PPROM who deliver in a birth centre without adequate facilities to care for their baby (0%).

11. References

Royal College of Obstetricians and Gynaecologists. Care of Women Presenting with Suspected Preterm Prelabour Rupture of membranes from 24+0 weeks: Green-top guideline No. 73. RCOG. 2019.

NICE Guidance (NG25) Preterm Labour and Birth. 2015 (updated 2019).

Appendix A – PPROM Patient Surveillance Form

Please contact in the case of:

- Temperature >37.5°C
- Offensive discharge or change in colour of liquor
- Feeling generally unwell
- Bleeding/abdominal pain
- Altered fetal movements

Date	Time	Temperature	Vaginal loss description	Are you feeling generally well?

Bwrdd Iechyd Prifysgol Cwm Taf Morgannwg University Health Board

Appendix B Ffurflen Cadw Golwg ar Gleifion PPROM

Cysylltwch yn achos y canlynol:

- Tymheredd >37.5°C
- Arllwysiad drewllyd neu hylif o liw gwahanol
- Teimlo'n dost yn gyffredinol
- Gwaedu/Poen yn yr abdomen
- Symudiadau gwahanol gan y ffetws

Dyddiad	**Amser**	**Tymheredd**	**Disgrifiad o'r Arllwysiad o'r Wain**	**Ydych chi'n teimlo'n dost yn gyffredinol?**