1.0 Title:
Preterm Prelabour Rupture of Membranes (PPROM)

2.0 Purpose:
PPROM occurs in 3% of pregnancies and is responsible for, or associated with approximately one-third or preterm births\(^1\). The three causes of neonatal death associated with PPROM are prematurity, sepsis and pulmonary hypoplasia\(^1\). Outcomes for preterm infants depend on place of birth and access to neonatal intensive care. Maternal transfer is generally safer than neonatal retrieval if delivery is not imminent. Preterm prelabour rupture of membranes requires obstetric and neonatal/paediatric medical officer consultation\(^5\).

3.0 Procedure

**Initial Assessment with consent**
- History and Examination;
- Abdominal palpation to determine fetal size and presentation;
- Speculum examination:
  - Exclude cord prolapse;
  - Visualise pooling of liquor;
  - Collect cervical and vaginal microbiological swabs (including GBS);
  - Estimate cervical dilation;
  - Diagnostic test i.e (Amnisure, Actim Prom, Fetal Fibronectin See Appendix 1)\(^2\).

**Transfer or retrieval for access to specialised obstetric and neonatal services.**
- This may be required depending on the role delineation of the facility and if neonatal facilities are suitable for gestation. See PD2010_069 Critical Care Tertiary Referral Networks (Perinatal)\(^3\), escalation and advice can be obtained by calling NETS 1300 362500 if required.

**Initial Management and Care for PPROM with consent\(^6\)**
- Electronic Fetal Monitoring\(^4\) to assess fetal welfare;
- Ultrasound to assess liquor volume (consider formal);
- C-reactive protein (CRP);
- Full blood count;
- Midstream urine specimen;
- Pad charts observing for colour and odour;
- Observations as per PD2013_049 Recognition and Management of Patients who are Clinically Deteriorating\(^8\).
• Ensure the woman and her family are involved in the decision making process.

**Antibiotic prophylaxis**

Studies show that prophylactic antibiotics prolong pregnancy and reduce maternal and neonatal sepsis\(^1\).

*If there is no evidence of chorioamnionitis or labour\(^2\).*

Recommendation to commence antibiotic prophylaxis with informed consent:

1) Amoxicillin/ampicillin 2g IV, 6 hourly for 48 hours, followed by amoxicillin 250mg orally every 8 hours for an additional 7 days (IV and oral). Also erythromycin 250mg orally, 6 hourly for 7 days\(^15\).

2) In labour if there is no evidence of chorioamnionitis, use the same antibiotics prophylaxis as recommended in the NNSW LHD Clinical Procedure Minimisation of Early –onset Neonatal Group B Streptococcal (EOGBS) Disease – Intrapartum Management.

*If there are signs of chorioamnionitis.*

Clinical presentation signs and symptoms:

- Maternal fever >38\(^0\)C with any two of the following;
- Increased white cell count (>15 \(X\) 10\(^9\) / L);
- Maternal tachycardia (>100 bpm);
- Fetal tachycardia (> 160 bpm);
- Uterine tenderness;
- Offensive smelling vaginal discharge;
- C-reactive protein > 40.

*Broad spectrum IV antibiotics are recommended for above findings with woman’s informed consent\(^14\).*

- Ampicillin (or amoxycillin) 2g IV every 6 hours;
- Gentamicin 5mg/kg IV daily;
- Metronidazole 500 mg IV every 12 hours;
- If allergic to penicillin, replace ampicillin with Vancomycin 1 gram 12 hourly\(^14\). In hours seek the Infectious Disease Consultants advice\(^15\).

*IV antibiotic therapy should continue postnataally if there is evidence of chorioamnionitis. The woman’s placenta should be sent to pathology for investigation with consent\(^6\).*

**Tocolytics**

Refer to NSW PD2011_0257 *Maternity-Tocolytic Agents for Threatened Preterm Labour Before 34 Week’s Gestation*.

**Corticosteroids**

- Administer 2 doses of 11.4mg of betamethasone intramuscularly 24 hours apart to the woman between 23 and 34\(^+\)6 gestation with PPROM.
- For gestations of 35 weeks or greater corticosteroids will be administered at the direction of the Obstetrician after discussion with the woman. The
Paediatrician / Neonatologist should be notified of whether steroids have been given.
- Repeat doses should only be considered in the absence of infection\textsuperscript{13}.

**Magnesium Sulphate for neuroprotection of the fetus**
- Administration is advised for neuroprotection of the fetus for woman at risk of preterm birth who are at least 24\textsuperscript{+0} weeks of gestation and < 30\textsuperscript{+0} week's gestation.
- Administer only after consultation with the receiving facility or NETS team or onsite Obstetrician.
- Magnesium sulphate should not be continued during a maternal transfer.

**Management**

**PPROM 20 - 22 week's gestation**
- Outcomes for extremely preterm infants depend on place of birth and access to neonatal intensive care.
- NETS consultation is recommended to assist in clinical decision making\textsuperscript{3} if fetal viability is uncertain.
- The woman and her family are to be involved in the decision making process.
- Antibiotics recommended as per above.

**Active Management (i.e. allow / encourage birth to proceed) when**
- In established labour;
- Signs of chorioamnionitis are present;
- Significant antepartum haemorrhage is present;
- The woman requests it after being fully informed of the consequences.

**Expectant Management**
- Is acceptable when the risk of chorioamnionitis and pulmonary hypoplasia is less than the risk of extreme preterm birth and neonatal death.
- If delivery does not occur, further antibiotics prophylaxis is indicated when labour recurs.
- Consider repeat high vaginal swab at weekly intervals; results may guide use of antibiotics in any subsequent labour.
- Initial full blood count, C-reactive protein.
- If the woman is “well” it is not necessary to carry out weekly maternal full blood count or C-reactive protein because the sensitivity of these tests in the detection of intrauterine infection is low\textsuperscript{2}.

**PPROM 23-34 week’s gestation**
- Continue antibiotics prophylaxis (as above).
- Expectant management until 34 weeks of gestation\textsuperscript{1}.

**Active Management (i.e. allow / encourage birth to proceed) when there’s**
- Labour has established;
- Signs of chorioamnionitis are present;
- Signs of fetal compromise\textsuperscript{4}.
Expectant Management may be appropriate in the absence of the above.

This management should include:
- Daily medical clinical assessment of the woman while an inpatient;
- Clinical observations twice daily as per Standard Maternity Observation Chart (SMOC) while an inpatient8;
- The woman should also be educated on observing her temperature, heart rate, fetal movements, vaginal loss (colour and smell) and uterine activity (pain and tenderness);
- Consultation is required with the Paediatrician at the facility or referring facility or the neonatologist at NETS.

Fetal Assessment
- Initial EFM and ultrasound for examination of fetal growth, position, residual amniotic fluid volume, fetal anatomy and biophysical profile2;
- EFM is useful because a fetal tachycardia, if present, may represent a late sign of infection2 There is no documented recommendation of frequency of EFM after initial assessment;
- EFM should be attended with any change in maternal conditions as per NSW Health GL2018_025, this includes, but is not limited to, pyrexia, maternal tachycardia, uterine tenderness, or decreased fetal movements4.

Investigations
- Initial full blood count, C-reactive protein;
- If the woman is “well” it is not necessary to carry out weekly maternal full blood count or C-reactive protein because the sensitivity of these tests in the detection of intrauterine infection is low2.

Vaginal Swabs
- Initial vaginal swab for Group B Streptococcus2;
- Weekly high vaginal swab need not be performed unless clinically indicated2.

PPROM at 34-37 week’s gestation
- Continue antibiotic prophylaxis as recommended above.

Active Management (i.e. allow / encourage birth to proceed) when
- In established labour;
- Signs of chorioamnionitis are present;
- Significant antepartum haemorrhage is present9;
- If GBS positive16;
- Signs of fetal compromise4;
- Gestational age confirmed ≥ 34 weeks1.

Expectant Management consists of
- Await spontaneous onset of labour until 36 completed weeks gestation if gestational age is uncertain or maternal request (mother and fetus stable)1.
- Recommendation to continue antibiotic treatment if woman declines induction of labour.
**Fetal Assessment**
- EFM is useful because a fetal tachycardia if present may represent a late sign of infection\(^2\). There is no documented recommendation of frequency of EFM assessment.
- EFM should be attended with any change in maternal conditions as per NSW Health [GL2018_025](#), this includes, but is not limited to pyrexia, maternal tachycardia, uterine tenderness or decreased fetal movements\(^4\).

**Home Care**
Further studies are required to warrant the safety of home care with PPROM\(^1\).

The following is not supported by evidence but gives some guidance for women who decline to remain as an inpatient with PPROM.
- May be reasonable to considered for certain women after 48 hours of initial hospitalisation if for example \(^2\):
  - Singleton pregnancy;
  - Cephalic presentation;
  - Easy access to hospital.

- Continue with consent and education for the woman.

**Counselling**
All women and their families regardless of gestation should be counselled by the midwifery/obstetric/paediatric team in regards to management plan and options.

### 4.0 Required Knowledge and Assessment to Perform this Procedure
Current accreditation competency with FONT Mandatory Fetal Monitoring Training [IB2012_042](#) Fetal welfare assessment, Obstetric emergencies and Neonatal resuscitation Training (FONT) Program.

Understanding and compliance with NSW Health related Policy and Guidelines as per documentation on cover sheet at the end of this procedure.

### 5.0 Monitoring and Evaluation
Any adverse clinical events or near misses are to be documented as per NSW Health [PD2014_004](#) Incident Management Policy\(^10\) and reviewed at facilities Morbidity and Mortality Meetings.

Maternity Services Managers are responsible for overseeing current mandatory training requirements documented in [IB2012_042](#) NSW Health ObstetriX data is to be reviewed at least quarterly at maternity services department meetings and interpreted with consideration of trending data.

### 6.0 Definitions
PPROM rupture of the fetal membranes before 37\(^0\) completed weeks of pregnancy (i.e. preterm) and before onset of labour (i.e. prelabour)\(^2\).
EFM Electronic Fetal Monitoring.

Chorioamnionitis is infection of amniotic fluid, membranes, placenta, and/or decidua\(^1\).

### 7.0 References


2) Royal College of Obstetricians and Gynaecologists 2010, *Preterm Prelabour Rupture of Membrane Green Top Guideline* No. 44 RCOG.


### 8.0 Appendices

**Appendix 1:** Actim PROM Test – Quickest Way to Reliable Results.

**Appendix 2:** Quick Reference Guide Fetal Fibronectin.
Appendix 1

Actim PROM test - Quickest way to reliable results

With pregnancy complications, you need to get answers in minutes. Actim PROM is the quickest rapid test on the market - because sometimes every minute counts.

Sample collection - in seconds with or without speculum

1. SAMPLE COLLECTION
   • Hold the swab in vagina for 10-15 seconds

Test procedure - reliable results in minutes

2. EXTRACTION:
   • Place the swab in the Specimen Extraction Solution and swirl around vigorously for 10-15 seconds

3.-4. DIPPING & LIQUID FRONT:
   • Dip the yellow area of the dipstick into the Specimen Extraction Solution and hold it there until the liquid front reaches the result area

5. TEST RESULTS - IN 5 MINUTES:
   • Positive result can be read as soon as it becomes visible = two blue lines = membranes are ruptured
   • Negative result should be confirmed at 5 minutes = one blue line = membranes are intact

Reference: [https://www.medixbiochemica.com](https://www.medixbiochemica.com) Actim Prom Products. Viewed 14th December 2015
Quality Control of Fetal Fibronectin: www.hologic.com

For accurate patient results, please ensure that you follow these instructions:

Specimens should be collected prior to:
- Digital cervical exam
- Collection of culture specimens
- Vaginal probe ultrasound exams

Do not test if patients have:
- Symptomatic
- Advanced cervical dilation (3 centimetres or greater)
- Rupture of amniotic membranes
- Cervical cerclage
- Moderate or gross vaginal bleeding
- Placenta previa
- Sexual intercourse in the last 24 hours

If the test is <10 ng/ml it can be interpreted as a valid result.

DO and DO NOT:
- DO Read test results generated by the 10Q System only (not visually from the cassette)
- DO Handle Rapid FN 10Q Cassette lot with care
- DO Ensure you are using the correct polyester swab from the Rapid FN Test Specimen Collection Kit
- DO Handle liquid controls and all patient sample as if potentially infectious
- DO Ensure that the correct sample volume (0.2 mL) is being pipetted into the Rapid FN 10Q Cassette well
- DO NOT use glass tubes/pipettes
- DO NOT mix materials from different lot lots
- DO NOT use Rapid FN 10Q Cassette or liquid controls past their expiration dates
- DO NOT use liquid controls if they are discoloured or cloudy
- DO NOT cross-contaminate reagents
- DO NOT use the same pipette tip for each control or patient sample

Quality Control (QC)
- Perform each day
  1. Select Daily QC (3 on Main Menu)
  2. Enter User ID and Serial Number when prompted
  3. Insert QC Cassettes and complete Daily QC
  4. Results are printed in 3 minutes

Notes: Ensure the QC Cassettes have been set up with the 10Q Analyzer before performing the daily QC.

Set Calibration
- For Each New Cassette Lot
  1. Select Set Calibration (2 on Main Menu)
  2. Enter User ID, Rapid FN 10Q Cassette Lot and Calibration Code when prompted

Run Liquid Controls
- For Each New Cassette Lot
  1. Select Liquid Controls (9 on Main Menu) and follow prompts
  2. Enter User ID, Liquid FN 10Q Cassette Lot, select either Negative Level 1 or Positive Level 2 Control and enter the Control Lot from the vie then press Enter
  3. Pipette 0.2 mL of liquid control into well of Rapid FN 10Q Cassette and press Enter
  4. The FN concentration result will be printed in 10 minutes and the Negative Level 1 and the Positive Level 2 Control should fall within the expected values printed on the Liquid control box.
  5. Test for both Negative Level 1 and Positive Level 2 liquid controls

Note: Place a printed record on a log sheet for future keeping.

"This poster is designed to be used in conjunction with Rapid fn 10Q System. Prior to performing the test, the health care provider should consult the Rapid fn 10Q System Manual for detailed information on test performance and interpretation."

Appendix 2
Patient Testing Fetal Fibronectin: www.hologic.com
### 9.0 NNSW LHD Clinical Procedure Cover Sheet

<table>
<thead>
<tr>
<th>COVER SHEET</th>
</tr>
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<tbody>
<tr>
<td><strong>NNSW Local Health District</strong></td>
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<tr>
<td><strong>CLINICAL Policy Framework</strong></td>
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<table>
<thead>
<tr>
<th>Name Of Document</th>
<th>Preterm Prelabour Rupture of Membranes (PPROM)</th>
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<tbody>
<tr>
<td>Type of Document</td>
<td>Procedure</td>
</tr>
<tr>
<td>Document Number</td>
<td>NC-NNSW-PRO-7678-16</td>
</tr>
<tr>
<td>Superseded Document</td>
<td>Nil</td>
</tr>
<tr>
<td>Sites/Services where compliance with this procedure is mandatory.</td>
<td>All NNSW LHD facilities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Related Ministry of Health PDs, LHD Documents or Australian Standards:</th>
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<tbody>
<tr>
<td>• PD2013_049 Recognition and Management of Patients who are Clinically Deteriorating</td>
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<tr>
<td>• PD2014_036 Clinical Procedure Safety</td>
</tr>
<tr>
<td>• PD2008_027 Clinical Care and resuscitation of the Newborn Infant</td>
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<tr>
<td>• GL2018_025 Maternity - Fetal Heart Rate Monitoring</td>
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<tr>
<td>• PD2010_022 Maternity National Guidelines for Consultation and Referral</td>
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<tr>
<td>• PD2010_045 Towards Normal Birth in NSW</td>
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<tr>
<td>• PD 2014_004 Incident Management Policy</td>
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<tr>
<td>• NC-NNSW-GUI-6865-13 Care of the Woman in Labour Guideline</td>
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<tr>
<td>• PD2010_069 Critical Care Tertiary Referral Networks (Perinatal)</td>
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<td>• PD2009_003 Maternity – Clinical Risk management Program</td>
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<tr>
<td>• GL2014_006 Maternity – Indications for Placenta Histological Examination</td>
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<tr>
<td>• PD2011_025 Maternity-Tocolytic Agents for Threatened Preterm Labour before 34 weeks</td>
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<tr>
<td>• NC-NNSW-PRO-7433-14 Antepartum Haemorrhage Management</td>
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<td>• IB2012_042 Fetal Welfare Assessment, Obstetric Emergencies and Neonatal Resuscitation Training (FONT) Program</td>
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<tr>
<th>Risk Management</th>
<th>Documentation for assessment and management of preterm prelabour rupture of membranes. This is to</th>
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NC-NNSW-PRO-7678-16
| **Summary** | This procedure documents the initial assessment of suspected rupture of membranes for a woman whose gestation is less than 37 weeks. It further documents a plan for management based on best evidence dependent on gestation and signs of infection. |
| **Key Words** | Preterm Prelabour Rupture of Membranes (PPROM), Electronic Fetal Monitoring, Chorioamnionitis, Preterm birth |
| **Author** | Jacinta Felsch, A/CMC |
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NNSW LHD Nursing and Midwifery Clinical Practice Guideline Committee  
NNSW LHD Drugs & Therapeutic Committee |
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