Preterm prelabour rupture of membranes (PPROM)

IMPORTANT: *Consider individual clinical circumstances. Consult a pharmacopeia for complete drug information. Read the full disclaimer at www.health.qld.gov.au/qcg*

Aspect	Consideration
Relevant to:	• Women with a live, singleton fetus with cephalic presentation between 22+0 and 37+0 weeks gestation with suspected preterm prelabour rupture of membranes (PPROM) • Sub-categories of preterm variously defined by gestational age as[1]: o Late preterm or near term (34+0 to 37+0 weeks) o Moderately preterm (32+0 to 33+6 weeks) o Very preterm (28+0 to 31+6 weeks) o Extremely preterm (less than 28+0 weeks)
Context	• Occurs in approximately 3% of pregnancies[2,3] • Responsible for 30% of preterm births[3,4] • 56% of women birth within seven days, 76% within 14 days and 86% within 21 days[2] • Advise women to present for assessment when PPROM is suspected
Standard care	• Refer to Queensland Clinical Guideline: *Standard care*[5] for care considered 'usual' or 'standard' o Includes for example: privacy, consent, decision making, sensitive communication, medication administration, staff education and support, culturally appropriate care
Aim of care	• Maximise benefits of increasing fetal maturity in-utero while minimising potential risks[4,6] o Care recommendations are therefore based on gestational age, and individual maternal and fetal circumstances
Initial assessment	• Review history and time of fluid loss (sudden gush of fluid or continued leakage of fluid per vagina) o Review history (obstetric, social, medical, surgical) o Maternal vital signs o General physical examination o Abdominal palpation (presentation, lie, fundal height, fetal movement and uterine activity) o Fetal heart rate (FHR)/cardiotocograph (CTG) (relevant to gestation) o Assess vaginal loss on pad (amount, colour, consistency, odour, bleeding, meconium) o If unable to confirm PPROM and/or repeat presentation with good history, consider increased surveillance
Vaginal examination	• Avoid digital vaginal examination (VE) as may increase risk of infection[3,8] • Use sterile speculum[3] to visualise[9]: o Pooling of amniotic fluid or leakage from the cervical os with coughing o Cervix, length, dilatation and to exclude cord prolapse • If ongoing uncertainty of diagnosis, test vaginal secretions with immunoassay (e.g. AmniSure®) or pH stick (e.g. Nitrazine) as per manufacturer's instructions o False-positive test results may occur in the presence of blood or semen, certain infections (e.g. bacterial vaginosis) or antiseptics[10]
Investigations	• Routine antenatal bloods that have not already been collected • Full blood count • Consider baseline C-reactive protein (CRP) o Conflicting evidence about usefulness in management of PPROM[11]—may be a useful adjunct to exclude infection (e.g. chorioamnionitis)[12-17] • Dipstick urinalysis and midstream urine for microscopy, culture and sensitivity (MCS) o Consider first void urinary PCR for gonorrhoea and chlamydia • Vaginal-rectal swab or vaginal-perianal swab for Group B *Streptococcus* (GBS) o If GBS positive, refer to Queensland Clinical Guideline: *Early onset Group B Streptococcal Disease*[18] for management options • With sterile speculum: o High vaginal swab for MCS and GBS (if not already obtained) • Transabdominal ultrasound scan to assess fetal wellbeing and confirm presentation

Initial management

Aspect	Considerations
Admission and inpatient care	• If confirmed PPROM, admit for further assessment and monitoring as per local protocols • Maintain a high index of suspicion for: o Cord prolapse o Antepartum haemorrhage o Infection—suggested initial monitoring: ▪ Four hourly maternal heart rate, temperature, vaginal loss, uterine tenderness/activity, ask about fetal movements, FHR ▪ If equal to, or greater than 28+0 weeks gestation, admission and daily CTG • If chorioamnionitis suspected, recommend intravenous (IV) antibiotics—refer to Queensland Clinical Guideline: Preterm labour and birth[19] • Cerclage removal: optimal timing is unclear[9] o No significant differences in prolonged latency, infection or neonatal outcomes[20-22] for removal versus retention o Delaying removal until 24 to 34 weeks gestation without signs of infection of preterm labour, may be considered to facilitate in-utero transfer, when required[23]
Routine antibiotics	• Known to prolong latency and reduce maternal and fetal infection following PPROM[24] o No evidence that antibiotic prophylaxis alters perinatal mortality or longer-term outcomes[25] • Optimal regimen is unclear[9,25]—if no local protocols exist recommend[26]: o Amoxicillin/ampicillin 2 g IV every 6 hours for 48 hours, followed by amoxicillin 250 mg oral every 8 hours for a total of 7 days (IV and oral) or until birth (whichever is sooner) ***PLUS*** o Erythromycin 250 mg (or erythromycin ethyl succinate 400 mg) oral every 6 hours for 7 days or until birth (whichever is sooner) • Azithromycin 1 g oral as a single dose may be considered in lieu of erythromycin[27,28] • If history of confirmed penicillin hypersensitivity erythromycin may be used as a single agent for 10 days.[26] Consider referral to an infectious diseases clinician and *eTG prophylaxis for PPROM*[26] • Amoxicillin/clavulanic acid not recommended as associated with increased risk of necrotising enterocolitis[9,24]
Prematurity	• Refer to Queensland Clinical Guidelines for recommendations regarding: o Antenatal corticosteroids[29] o Magnesium sulfate for neuroprotection (before 30 weeks gestation)[19] o Care of gestations at the lower limits of viability[30] o Intrapartum antibiotic prophylaxis for GBS[18]
Supportive care for families	• Counsel about prematurity relevant to gestation[9] including (if appropriate) viability and options for care • Offer psychological support • Involve other members of the multidisciplinary team relevant to circumstances in care planning (e.g. neonatologist, paediatrician, social worker, maternal fetal medicine specialist)
Self-care advice	• Advise about risk of cord prolapse and emergency management if occurs • Advise about the risk of infection and the importance of: o Personal hygiene—change sanitary pad four hourly, showering and not bathing o Self-monitoring temperature daily and vaginal loss with each pad change o Avoiding tampon use, vaginal creams/medications, vaginal intercourse, swimming/baths o Attending all review appointments • Provide information and advise to seek care from a healthcare provider if: o Concern re fetal movements [refer to Queensland Clinical Guideline: *Fetal movements*[31]] o Changes in vaginal loss (colour, odour, amount, bleeding, or meconium) o Signs of early labour/abdominal tenderness or pain o Temperature 37.5 °C or above or feeling unwell or other concerns
In-utero transfer	• Consider the likelihood of preterm birth and potential need for transfer to higher level service • Tocolysis may be considered to achieve antenatal corticosteroid administration or transfer • If indicated, contact Retrieval Services Queensland (RSQ) to discuss and coordinate transfer
Home care	• Consider individual circumstances when determining suitability for home care or other hospital supported accommodation (e.g. on or off hospital campus accommodation) • Insufficient evidence to compare planned home versus hospital management for serious neonatal morbidity, chorioamnionitis, gestational age at birth, birth weight, admission to neonatal intensive care[4] or continuous bed rest[28]

Ongoing surveillance

There is a lack of high level evidence about optimal frequency, or type of ongoing maternal and fetal surveillance. Local protocols may vary. The following *minimum* surveillance is based on the consensus view of the working party. Increase frequency, perform a clinical examination and seek medical review if there is concern for maternal and/or fetal wellbeing.

Suggested minimum surveillance

Surveillance	Frequency	Comment
Maternal self-monitoring		
Temperature and heart rate	• Daily to twice daily	• Review and record at each presentation
Vaginal loss	• With pad changes	• Note any change in colour, odour, amount, meconium, bleeding
Uterine tenderness/activity	• Ongoing	• May indicate preterm labour or chorioamnionitis
Fetal movements	• Note usual pattern and frequency of movement	• if changes, arrange medical review and CTG
Maternal wellbeing	• Ongoing	• Further investigations as indicated
Fetal		
CTG/FHR	• Weekly and with each presentation	• CTG as per local protocol—if no local protocol CTG if greater than 28–30 weeks • Fetal tachycardia may indicate infection[10]
Ultrasound scan	• Serial second weekly as indicated	• If greater than 23 weeks—discuss with maternal fetal medicine specialist
Pathology		
Full blood count	• If indicated	• Limited evidence for detection of uterine infection and/or improving maternal and neonatal outcomes[32]
Urine MCS	• If indicated	• Refer to investigations
High/low vaginal swab	• If indicated	• Refer to investigations

Outcomes for planned birth versus expectant management (24–37 weeks gestation)

Outcomes	Trials	Participants (n=number)	Relative risk	Confidence interval (95%)	Interpretation
Antepartum haemorrhage[33] > 34 weeks	1	n=1835	0.5	0.4 to 0.9	Less likely
Chorioamnionitis[34] > 34 weeks < 34 weeks	 3 4	 n=847 n=418	 0.26 0.77	 0.12 to 0.57 0.45 to 1.30	 Less likely No significant difference
Caesarean section[34] > 34 weeks < 34 weeks	 5 5	 n=2922 n=488	 1.22 1.46	 1.05 to 1.42 1.08 to 1.42	 No significant difference No significant difference
Endometritis[34] > 34 weeks < 34 weeks	 3 4	 n=2562 n=418	 0.37 2.23	 0.10 to 1.4 1.29 to 3.84	 No significant difference Decreased
Neonatal infection[34] > 34 weeks < 34 weeks	 12 5	 n=3628 n=490	 0.93 1.61	 0.66 to 1.30 0.74 to 3.50	 No significant difference No significant difference
Respiratory distress[33] > 34 weeks	1	n=1829	1.60	1.10 to 2.30	More likely

> greater than, < less than

Timing of birth

Optimal gestation at which to expedite birth is unclear.[34,35] Individually consider the possibility of expectant management after 24+0 weeks gestation until at least 37+0 weeks gestation.[3]

Aspect	Considerations
Near term	• Between 34+0 and 37+0 weeks there is limited and inconsistent evidence to guide practice
Less than 34+0 weeks	• The risks of prematurity are generally greater than the risks of expectant management
Consider expediting birth	• If concern for maternal or fetal wellbeing at initial presentation or during subsequent care

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