Preterm prelabour rupture of membranes (PPROM)

IMPORTANT: *Consider individual clinical circumstances. 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 36+6 weeks gestation with suspected prelabour rupture of membranes · 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	· Estimated: o Occurs in 3% of pregnancies[2] o Responsible for 30% of preterm births[2] o 25–50% will have an infection at presentation[3] o 50% will go into labour within one week and 75% within two weeks[4] · Advise women to present for assessment when PPROM is suspected
Aim of care	· Maximise benefits of increasing fetal maturity in-utero while minimising potential risks[2] 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) · Conduct a clinical assessment [refer to Queensland Clinical Guideline: *Normal birth*[5]]: o Review of history (obstetric, social, medical, surgical) o Maternal vital signs o General physical examination o Abdominal palpation o FHR/CTG (relevant to gestation) o Assess vaginal loss on pad (amount, colour, consistency, odour, bleeding, meconium) o If unable to confirm diagnosis and/or repeat presentation with good history consider increased surveillance
Vaginal examination	· Avoid digital vaginal examination as may increase risk of infection[6,7] · Sterile speculum o Visualise pooling of amniotic fluid or leakage from the cervical os with coughing o Visualise cervix, length, dilatation, exclude cord prolapse · If required, test vaginal secretions with immunoassay (e.g. AmniSure) or pH stick (e.g. Nitrazine) as per manufacturer's instructions
Investigations	· Routine antenatal bloods that are not already collected · Full blood count · Consider baseline C-reactive protein (CRP) o Conflicting evidence about usefulness in management of PPROM—may be a useful adjunct to exclude infection as has low sensitivity (less than 20%) and high specificity (greater than 90%) for chorioamnionitis[8-10] · Dipstick urinalysis and midstream urine for microscopy, culture and sensitivity (MC&S) o Consider first void urinary PCR for gonorrhoea and chlamydia · Low vaginal and anal swab for Group B *Streptococcus* (GBS) · With sterile speculum: o High vaginal swab for MC&S · Transabdominal ultrasound scan to assess fetal wellbeing and confirm presentation

Initial management

Aspect	Considerations
Admission and inpatient care	· If confirmed PPROM, admit for initial 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 greater than 28–30 weeks gestation, daily cardiotocograph · If chorioamnionitis suspected, recommend IV antibiotics—refer to Queensland Clinical Guideline: *Preterm labour and birth*[11] · Cerclage removal: optimal timing is unclear—removal versus retention showed no significant differences in prolonged latency, infection or neonatal outcomes[12,13]
Routine antibiotics	· Known to prolong latency and reduce maternal and fetal infection following PPROM[14] o No evidence that antibiotic prophylaxis alters perinatal mortality or longer-term outcomes · Optimal regimen is unclear[15-17] recommend *either*: o Erythromycin 250 mg oral 6 hourly for 10 days **OR** 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), PLUS erythromycin 250 mg oral every 6 hours for 7 days · Amoxicillin/clavulanic acid not recommended as associated with increased risk of necrotising enterocolitis[14]
Prematurity	· Refer to Queensland Clinical Guidelines: *Preterm labour and birth*[11], *Perinatal care at the threshold of viability*[18] and *Early onset Group B Streptococcus Disease*[16] (EOGBSD) for: o Antenatal corticosteroids—routinely recommend before 35+0 weeks o Magnesium sulfate for neuroprotection (before 30 weeks gestation) o Care of gestations at the lower limits of viability o Intrapartum antibiotic prophylaxis for EOGBSD
Supportive care	· Counsel about prematurity relevant to gestation o Involve neonatologist/paediatrician in care planning · Offer psychological support · Involve other members of the multidisciplinary team relevant to circumstances (e.g. social worker, maternal fetal medicine specialist) · If less than 23+0 weeks gestation, counsel about viability and options for care
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 (or more frequently), wiping front to back after toileting, showering in preference to baths 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 · Advise to seek care from a health care professional if: o Concern about fetal movements [refer to Queensland Clinical Guideline: *Fetal movements*[19]] o Changes in vaginal loss (colour, odour, amount, new bleeding or meconium) o Signs of early labour/abdominal tenderness or pain o Temperature 37.5 °C or above o Feeling unwell or other concerns
In-utero transfer	· Consider the likelihood of preterm birth and need for transfer to higher level services · Tocolysis may be considered to achieve antenatal corticosteroid administration or in-utero transfer · If indicated, contact Retrieval Services Queensland (RSQ) to discuss and coordinate transfer ph:1300 799 127
Home care	· Consider individual circumstances when determining suitability for home care or other hospital supported accommodation (e.g. on or off hospital campus accommodation) o Insufficient evidence to compare planned home versus hospital management for serious neonatal morbidity, chorioamnionitis, gestational age at birth, birth weight or admission to neonatal intensive care[2]

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 or fetal wellbeing.

Suggested minimum surveillance

Surveillance	Frequency	Comment
Maternal self-monitoring		
Temperature	· Daily to twice daily	· Review, record at each presentation
Vaginal loss	· With pad changes	· Note change in colour, odour, amount, meconium, bleeding
Uterine tenderness/activity	· On-going	· May indicate preterm labour, chorioamnionitis
Fetal movements	· Note usual pattern and frequency of movement	· Medical review and cardiotocograph if changes
Maternal wellbeing	· On-going	· Further investigations as indicated
Fetal		
Cardiotocograph/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[20]
Ultrasound scan	· Serial second weekly as indicated	· If greater than 23 weeks
Pathology		
Full blood count	· If indicated	· Limited evidence for detection of uterine infection and/or improving maternal and neonatal outcomes[15]
Urine MC&S	· If indicated	
High/low vaginal swab	· If indicated	

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

Any planned birth compared to expectant management		Risk with any planned birth
Antepartum haemorrhage[21]	> 34 weeks (RR 0.6, 95% CI 0.4 to 0.9; 1 trial, n=1835)	Decreased
Chorioamnionitis[22]	> 34 weeks (RR 0.26; 95% CI 0.12 to 0.57; 3 trials, n=847)	Decreased
	< 34 weeks (RR 0.77; 95% CI 0.45 to 1.30; 4 trials, n=418)	No significant difference
Caesarean section[22]	> 34 weeks (RR 0.1.22; 95% CI 1.05 to 1.42; 5 trials, n=2922)	No significant difference
	< 34 weeks (RR 1.46; 95% CI 1.08 to 1.42; 5 trials, n=488)	No significant difference
Endometritis[22]	> 34 weeks (RR 0.37; 95% CI 0.10 to 1.4; 3 trials, n=2562)	No significant difference
	< 34 weeks (RR 2.23; 95% CI 1.29 to 3.84; 4 trials, n=418)	Decreased
Neonatal infection[22]	> 34 weeks (RR 0.93; 95% CI 0.66 to 1.30; 12 trials, n=3628)	No significant difference
	< 34 weeks (RR 1.61; 95% CI 0.74 to 3.50; 5 trials, n=490)	No significant difference
Respiratory distress[21]	> 34 weeks (RR 1.6, 95% CI 1.1 to 2.30; n=1829)	Increased

Timing of birth

Optimal gestation at which to expedite birth is unclear.[23,24]

Aspect	Considerations
Near term	· Between 34+0 and 36+6 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 active labour establishes · If concern for maternal or fetal wellbeing at initial presentation or during subsequent care

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