Preterm labour and birth

Clinical Guideline Presentation

45 minutes
Towards CPD Hours
Objectives

• In relation to preterm labour (PTL) and preterm birth (PTB), the participant will be able to:
  ◦ Identify risk factors
  ◦ Identify risk reduction measures
  ◦ Outline the assessment process
  ◦ Outline clinical management options
# Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>BMI</td>
<td>Body mass index</td>
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<tr>
<td>CTG</td>
<td>Cardiotocograph</td>
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<tr>
<td>CS</td>
<td>Caesarean section</td>
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<tr>
<td>fFN</td>
<td>Fetal fibronectin</td>
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<td>FHR</td>
<td>Fetal heart rate</td>
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<td>GBS</td>
<td>Group B streptococcus</td>
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<td>MSU</td>
<td>Mid stream urine</td>
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<tr>
<td>MC&amp;S</td>
<td>Microscopy / culture / sensitivity</td>
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<tr>
<td>PROM</td>
<td>Premature rupture of membranes</td>
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<tr>
<td>PPROM</td>
<td>Preterm premature rupture of membranes</td>
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<tr>
<td>PTB</td>
<td>Preterm birth</td>
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<tr>
<td>PTL</td>
<td>Preterm labour</td>
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<tr>
<td>QCC</td>
<td>Queensland Emergency Medical System Coordination Centre</td>
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<tr>
<td>ROM</td>
<td>Rupture of membranes</td>
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<tr>
<td>TVCL</td>
<td>Transvaginal cervical length</td>
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<tr>
<td>USS</td>
<td>Ultrasound scan</td>
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<tr>
<td>VE</td>
<td>Vaginal examination</td>
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<tr>
<td>&gt;</td>
<td>Greater than</td>
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<tr>
<td>&lt;</td>
<td>Less than</td>
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Introduction

Preterm birth: Occurring before 37 completed weeks

- PTB occurred in 9.4% of all pregnancies in Queensland in 2017
- Cause unidentified in up to 50% of PTB
- Majority of women with risk factors will not have PTB
- Many women who have a PTB have no risk factors
- 8.7% of singleton births
- 66% of multiple births
## Risk factors for PTB

*Most important historical risk factor is prior spontaneous PTB*

<table>
<thead>
<tr>
<th>Maternal, medical and pregnancy risk factors</th>
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<tbody>
<tr>
<td>Previous PTB*</td>
<td>Fetal fibronectin positive</td>
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<tr>
<td>Assisted reproduction</td>
<td>Short cervical length</td>
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<tr>
<td>Cigarette smoking</td>
<td>Genital/urinary tract infections</td>
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<td>Low socio-economic status</td>
<td>Vaginal bleeding</td>
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<td>High or low body mass index (BMI)</td>
<td>Multiple pregnancy</td>
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<tr>
<td>Late or no antenatal care</td>
<td>Preterm premature rupture of membranes (PPROM)</td>
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<tr>
<td>Uterine anomalies</td>
<td>Chronic/acute medical conditions</td>
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<tr>
<td>Ethnicity (non-Caucasian)</td>
<td>Previous cervical trauma</td>
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<tr>
<td>&lt; 18 or &gt; 35 years of age</td>
<td>Previous cervical surgery</td>
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### Risk screening

<table>
<thead>
<tr>
<th>Category</th>
<th>Recommendation</th>
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<tr>
<td><strong>History</strong></td>
<td>• Comprehensive history review including maternal characteristics and previous medical/pregnancy history</td>
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</table>
| **Counselling**                    | • Psychosocial needs, smoking, lifestyle, chronic disease  
• Involve a multidisciplinary team and refer when needed/appropriate |
| **Bacterial vaginosis**            | • Offer screening and treatment to women with symptoms of BV and/or history of PTB                  |
| **Bacteriuria**                    | • Offer routine ward test urine screening and treatment to women                                    |
| **Transvaginal cervical length**   | • If history of PTB: recommend serial TVCL screening from 14–24 weeks                             
• If low risk of PTB: consider a single TVCL measurement during mid-trimester USS |
Progesterone therapy

Reduces risk of PTB in women with a history of spontaneous PTB and/or short cervix

- Consider for:
  - Singleton pregnancy from 16–24 weeks with a history of prior spontaneous PTB
  - Asymptomatic women with incidentally diagnosed short cervix in the second trimester
  - Not recommended for use in multiple pregnancies
Cervical cerclage

Compared with no treatment cerclage reduces incidence of PTB in women at risk

Consider cervical cerclage for women with a history of:
- One or more prior spontaneous PTB and/or second-trimester loss related to painless/painful cervical dilation and in the absence of labour or placental abruption or
- Prior cerclage due to painless cervical dilation in second trimester or
- Cervical incompetence

Cerclage may be indicated if TVCL is less than 25 mm before 24 weeks if:
- Preterm prelabour rupture of membranes (PPROM) in a previous pregnancy or
- A history of cervical trauma/surgery or
- Prior spontaneous PTB before 34 weeks gestation and
- Current pregnancy singleton
Clinical assessment

Rationale: to determine risk of birth within the next 7 days

- Assess maternal and fetal wellbeing
- Review history and risk factors
  - Medical, surgical, obstetric, psychosocial
- Assess for signs and symptoms of PTL
  - Cervical effacement/dilatation
  - Pelvic pressure
  - Lower abdominal cramping/back pain
  - Vaginal loss (mucous, blood, fluid)
  - Regular uterine activity
Physical examination

- Vital signs
- Abdominal palpation
- Sterile speculum examination
  - Confirm/exclude PPROM
  - Assess cervix, liquor
  - Collect high vaginal swab for MC&S for bacterial vaginosis
  - Collect either vaginal-rectal or vaginal-perianal swab for Group B streptococcus
  - Obtain fFN test (if not contraindicated)
- Sterile digital VE
  - Unless contraindicated by ROM/placenta praevia
Fetal surveillance and investigations

- Fetal surveillance
  - FHR
  - Continuous CTG (interpret with caution if less than 28 weeks gestation)
  - USS, if feasible
- Maternal laboratory investigations
  - Collect high vaginal swab for MC&S for bacterial vaginosis
  - Collect either vaginal-rectal or vaginal-perianal swab for Group B streptococcus
  - Midstream urine for MC&S
Transvaginal cervical length

Risk of PTB increases with a shorter cervical length

- If history of PTB: recommend serial TVCL screening from 14–24 weeks
- If low risk of PTB: consider a single TVCL measurement during mid-trimester USS
- Consider therapeutic interventions when TVCL is < 25 mm
Fetal fibronectin testing

Screening test to assess the risk of PTB in next 7–14 days

Indications for **symptomatic** women with threatened preterm labour:
- Between 22+0 and 37+0 weeks gestation and
- Intact membranes and
- Cervical dilatation less than or equal to 3 cm

Indications for **asymptomatic** women, greater than 22 weeks gestation, with a history of:
- Cervical surgery/trauma or
- PTB in previous pregnancy or
- Late miscarriage in previous pregnancy
Is admission required?

- Consider admission if:
  - fFN result greater than 50 ng/mL
  - Cervical dilation
  - Cervical change over 2–4 hours
  - Ruptured membranes
  - Regular contractions
  - Further observation or investigation indicated
  - Other maternal or fetal concerns
Management

Use clinical judgement and appropriate consultation

- Admit for observation
- Consider if in-utero transfer is indicated
- Offer analgesia
- Administer corticosteroids
- Measure TVCL (if available)
- Communicate with multidisciplinary team
- Discuss plan with woman and document
- Clinical reassessment as required
In-utero transfer

Improved neonatal outcomes with appropriate transfer

- Aim for **in-utero** transfer
- Accept a high level of risk for birth en-route if gestation less than 28 weeks
- Contact & discuss with relevant obstetric medical co-ordinator via Queensland Emergency Medical System Coordination Centre (QCC) on 1300 799 127
Antenatal corticosteroids

Reduces fetal mortality and morbidity

- Recommend with viable fetus before 35+0 weeks
- If risk of PTB persists 7 days after initial course, consider repeat dose(s)
- If maternal diabetes present, monitor blood glucose levels
Tocolysis

- May delay birth and allow:
  - In-utero transfer
  - Corticosteroid administration
  - Magnesium sulfate administration
  - No evidence for prophylactic use after contractions have ceased
Tocolysis contraindicated

If prolongation of pregnancy is contraindicated

- In-utero fetal death
- Suspected fetal compromise
- Maternal bleeding/haemodynamic instability
- Lethal fetal anomalies
- Severe pre-eclampsia
- Chorioamnionitis
Nifedipine

- Tocolytic of choice
- Calcium channel blocker that relaxes smooth muscle
- Effective tocolytic with fewer side effects than other tocolytics
Antibiotics

Routine administration in *threatened* PTB with intact membranes and without infection not recommended

- If *established* PTL or *imminent risk* of PTB, give prophylactic antibiotics for GBS
- If PTL does not ensue and no other indications, then with:
  - Intact membranes, cease antibiotics
Signs of chorioamnionitis

• Temperature > 38 °C, maternal/fetal tachycardia, uterine tenderness, offensive discharge, elevated white cell count
• If intact or ruptured membranes and signs of chorioamnionitis, do not inhibit labour
• Consider hastening the birth and use broad spectrum IV antibiotics
Magnesium sulfate

Reduces the risk of cerebral palsy and protects gross motor function in the preterm infant

- **Recommend** between 24+0 and 30+0 weeks where birth is expected or planned within 24 hours
- **Consider** for women between 30+0 and 33+6 weeks
- If urgent birth indicated, do not delay birth to administer
Mode of birth

- Singleton vertex ≥ 26+0 weeks
  - Recommend vaginal birth unless caesarean section (CS) indicated for other reasons
- Breech ≥ 26+0 weeks
  - CS not generally recommended if vaginal birth imminent
- ≤ 25+0 weeks* (vertex or breech)
  - CS for fetal indications not generally recommended at less than 25+0 weeks

*Refer to Queensland Clinical Guideline: *Perinatal care at the threshold of viability*
After threatened PTL

• Provide care according to clinical circumstances
  ◦ Prolonged admission
  ◦ Back transfer
  ◦ Discharge if usual criteria met (e.g. consider maternal vital signs, membrane status, contractions infrequent, cervical changes, CTG, fFN test result)

• Refer and follow-up as indicated
Provide discharge information

• Provide the woman information that:
  ◦ Aids recognition of PTL signs and symptoms
  ◦ Identifies risk reduction measures
  ◦ Provides instruction about when to seek clinical advice
• Offer social worker or other relevant referral/s
• Notify GP of diagnosis and plan of care