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>Description</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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<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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**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

### Maternal, medical and pregnancy risk factors

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Contributing Factor</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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*Most important historical risk factor is prior spontaneous PTB*
Risk screening

- **History**
  - Comprehensive history review including maternal characteristics and previous medical/pregnancy history

- **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

- **Cervical length**
  - If history of PTB: recommend serial TVCL screening from 14–24 weeks
  - All women: recommend cervical measurement during mid-trimester USS
Progesterone therapy

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

- For singleton pregnancies recommend vaginal progesterone 200 mg nocte from 16–36 weeks gestation for:
  - Women with an incidentally diagnosed shortened cervix (less than or equal to 25 mm) on TVCL between 16–24 weeks
  - Women with a prior spontaneous PTB between 20–34 weeks (with or without preterm prelabour rupture of membranes)
  - Not recommended for use in multiple pregnancies
Cervical cerclage

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

- Offer cerclage where medically indicated including where the cervix continues to shorten despite the use of vaginal progesterone
  - Cared for, or in collaboration with, an expert practitioner

- If cervical length less than or equal to 10 mm consider cervical cerclage, vaginal progesterone or a combination of both

- 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

- All women: recommend routine cervical length measurement to women during the mid-trimester morphology (18–20 weeks) ultrasound scan
- If history of PTB: recommend serial cervical length screening from 14–24 weeks
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
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
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