# Preterm Labour Policy

## 1. Background

Preterm labour (PTL) is commonly defined as painful uterine contractions with cervical change between 20 and 36+6 weeks of gestation.

Preterm labour is associated with a high risk of neonatal morbidity and mortality, especially at lower gestational ages and those born at sites without specialist neonatal care. In Australia in 2019, preterm birth (PTB) accounted for:

- One (1) in 11 births
- 8.7% of all singleton births
- 66% of all twin births
- 14.2% of all the births to Aboriginal and/or Torres Strait Islander women
- 18.4% of all perinatal deaths

Early and unexpected labour, birth and the hospitalisation of a preterm baby can be distressing for mothers and families. Aboriginal women experience preterm labour and birth more commonly than non-Aboriginal women. It is therefore important that standard care includes respectful communication, women centred care, and informed decision making that is culturally sensitive and secure.

For initiative to prevent preterm birth – see WA Preterm Birth Prevention Initiative.

### 1.1 WA Country Health Service (WACHS) context

King Edward Memorial Hospital (KEMH) research has demonstrated that very preterm infants, born outside of a tertiary neonatal hospital (outborn), have increased morbidity and mortality including:

- 3% excess deaths in infants below 32 weeks,
- 15% excess deaths less than 28 weeks
- three (3) times the rate of cerebral palsy.

Close to 500 women from WACHS regions birth prior to 37 completed weeks each year. Many of these women require transfer to a regional resource centre or metropolitan hospital for higher level care.

While the actual rate of very preterm (< 32 weeks) outborn births in WACHS is very low, it is important that this high risk cohort are assessed quickly, discussed early with specialist Obstetric/Neonatal teams and prioritised for early retrieval to tertiary services as indicated to ensure the best outcomes possible.

WACHS has over 70 hospitals and 27 nursing posts with 18 birthing sites in 7 regions. It is important to ensure that resources available for the diagnosis and management of preterm labour and birth are appropriate to the service level of a site (refer to WACHS Maternal and Newborn Care Capability Framework Policy).

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## 2. Policy Statement

This policy applies is to all WACHS Emergency Departments and Maternity services when a woman presents in suspected or actual preterm labour.

The aims of this policy are:

- To rapidly assess the risk of threatened or actual preterm labour i.e. labour at less than 37 completed weeks.
- To commence timely suppression of labour (unless not required or contraindicated) and enable in-utero transfer to specialist care where possible.
- To initiate treatment for the likely causes of the preterm labour e.g. urinary tract infection.
- To assess the maternal and fetal wellbeing in the situation of preterm labour.
- To assist in the triage, timely retrieval and decision making around determination of mode and timing of transfer as clinically indicated.

### 2.1 Procedure

#### 2.1.1 Clinical Assessment of Preterm Labour

Also refer to quick reference guide - Appendix 1.

Gestational age must be confirmed by menstrual history or by a first trimester ultrasound report. If gestational age cannot be determined through taking a history from the woman or from her medical records, then an urgent discussion must be undertaken with a midwife or obstetrician.

**For Emergency Department staff**
For guidance on a brief clinical assessment of the potentially labouring women refer to Appendix 6 of the WACHS Assessment and Management in the Emergency Department – Clinical Practice Standard.

**Table 1. Clinical Assessment**

| Aspect | Consideration |
|---|---|
| **Review history** | • Medical<br>• Surgical<br>• Obstetric – (gestational age)<br>• Psychosocial (including trauma) and lifestyle<br>• Risk factors associated with preterm birth - refer to **Appendix 2**. |

| Table 1. Clinical Assessment Continued… | |
|---|---|
| **Aspect** | **Consideration** |
| **Signs and symptoms** | The most common sequence preceding PTB is cervical ripening (shortening of the cervix), and then contractions characterised by:<br>• Cervical effacement and/or dilatation<br>• Pelvic pressure<br>• Lower abdominal cramping<br>• Lower back pain<br>• Vaginal loss (mucous, blood spotting or fluid) with membranes intact/ruptured<br>• Regular uterine activity (contractions). |
| **Physical examination (Maternity CSF Level 2 -4)** | Midwife or Obstetric doctor to complete:<br>• Vital signs<br>• Abdominal palpation to assess uterine tone, contractions, fetal size and presentation<br>• Speculum examination to visualise the cervix with full aseptic technique (avoid touching the cervix) and:<br>• High vaginal swab for microscopy, culture and sensitivity (MC&S)<br>• If the cervix is closed and no blood or amniotic fluid is seen in the vagina, perform a fetal fibronectin (fFN)<br>➢ Refer to **Appendix 3**, Fetal fibronectin testing<br>• Cervical length as determined by ultrasound, if trained staff and equipment available, may be useful. A cervical length of >35mm and an undilated internal os are negative predictors of birth.<br>• Digital examination shall be avoided unless there is a significant possibility of a cord presentation or prolapse, or the cervix cannot be visualised and there is significant concern of preterm labour. |
| **Physical examination (Non-maternity site)** | If no midwife or obstetric doctor available refer to the quick reference guide **Appendix 1** |

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| Table 1. Clinical Assessment Continued…. | |
|---|---|
| **Aspect** | **Consideration** |
| **Fetal surveillance**<br>**(Maternity level 2 – 4)** | • Continuous CTG<br>➢ interpret with caution if less than 28 weeks gestation<br>• Ultrasound examination for fetal growth and wellbeing<br>➢ Fetal number, presentation, liquor volume and placenta localisation |
| **Laboratory investigations** | • High vaginal swabs for MC&S.<br>• Midstream specimen of urine for bacteriology (MC&S) |

### 2.1.2 Management of Preterm labour

It is important to ascertain maternal and fetal well-being in conjunction with managing the three priorities of preterm labour:

- tocolytic therapy (suppress contractions)
- corticosteroid therapy (fetal lung development)
- transfer to specialist care.

Fetal factors such as chorioamnionitis, antepartum haemorrhage and intrauterine growth restriction may make delaying birth unwise and is to be discussed with a consultant obstetrician. These risks must be balanced with evidence of better outcomes associated with in-utero transfer to a maternity service with paediatric or neonatal services able to manage the neonate.

**FOR EMERGENCY DEPARTMENTS (non-maternity sites)**
If birth is imminent – refer to WACHS Imminent Unplanned Birth at a Non-Birthing Site Policy.

### 2.1.3 Tocolysis

NOTE: Emergency departments must only commence tocolysis after discussion with a consultant Obstetrician.

Despite the paucity of evidence between management of threatened preterm labour with tocolytic agents and improved perinatal outcomes, they might be useful in temporarily stalling labour in the transfer setting. In addition to oral Nifedipine, intravenous salbutamol is another alternative used by a number of transfer providers, especially at more advanced cervical dilatation. However with Salbutamol, the increased maternal side effects and complications must be considered and planned for, especially with prolonged use, as evacuations from remote areas of Australia can take in excess of 12 hours.

For guidance on the administration of tocolysis therapy treatment regimens refer to KEMH Preterm Labour Clinical Guideline or if requiring transfer via air consult with RFDS.

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**Considerations**

- Tocolytic drugs may delay birth and allow:
  - administration of corticosteroids for fetal lung maturity
  - administration of magnesium sulphate for fetal neuroprotection
  - in-utero transfer to an appropriate neonatal facility.
- Prolonged tocolysis is not associated with a clear reduction in perinatal mortality or serious neonatal morbidity.
- Tocolysis at pre-viable gestations (less than 23 weeks) is not generally recommended.
- There is limited evidence about the use of tocolytics in the setting of Preterm prolonged (more than 24 hours) rupture of membranes (PPROM) in the absence of contractions (but may be required for transfer).
- Gestational age is a major determinant for management.
- Tocolysis with PPROM before 34+0 weeks associated with:
- a lower risk of birth within 48 hours.

**Contraindications**

- Maternal contraindications to tocolysis (agent specific) include where prolongation of the pregnancy is not indicated including (but not limited to):
  - In-utero fetal death/lethal fetal anomalies (unless required for transfer)
  - Suspected fetal compromise
  - Maternal bleeding with hemodynamic instability
  - Severe pre-eclampsia
  - Placental abruption
  - Chorioamnionitis

### 2.1.4 Steroids

- See - King Edward Memorial Hospital Clinical Guideline: Obstetrics and Gynaecology: Corticosteriods

**Considerations**

- Administration of antenatal corticosteroids between 23 and 35+6 weeks gestation is associated with:
  - Significant reduction in rates of neonatal death, respiratory distress syndrome and intraventricular haemorrhage (IVH)
  - Reduction in necrotising enterocolitis, respiratory support, intensive care admissions and systemic infections in the first 48 hours of life compared with no treatment or treatment with placebo
- Beneficial effect has been demonstrated regardless of membrane status.

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**Recommendations**

- Administration of a single course of antenatal corticosteroid therapy is to be offered to all women between 23 to 35+6 weeks gestation at high risk of preterm birth as determined by fFN result and symptoms.
- Unless birth is imminent, even if only one dose is anticipated, a course of antenatal corticosteroids is to be commenced for all women at risk of preterm birth.
- Women with preterm rupture of membranes are to be offered a course of corticosteroid therapy provided there are no clinical signs of infection.

**Contraindications**

- Women with systemic infection including tuberculosis
- Women with suspected COVID-19 infection should be discussed with a consultant Obstetrician

**Caution:**

- if chorioamnionitis is suspected.
- Gestational Diabetes and at risk of late preterm birth (34 - 35+6) the decision to administer corticosteroids is to be made in consultation with a senior Obstetric registrar or consultant obstetrician with careful considerations of the risks and benefits.

**Administration**

- Administer one course of Betamethasone (Celestone Chronodose) 11.4mg (two ampoules) by maternal intramuscular injection and repeat this dose 24 hours later.

### 2.1.5 Transfer

Utilising the Quick Reference Transfer Flow Chart (see Appendix 1) and following appropriate specialist Obstetric /Paediatric consultation and discussion of:

- the preterm birth risk point of care testing or other test result,
- the overall clinical circumstances,
- the resources available
- the service capability of the facility transferring
- the service capability needed for the birth/ gestation of the neonate.

## 2.2 Other Considerations

### 2.2.1 Magnesium Sulphate

NOTE: Emergency departments must not commence magnesium sulphate in pregnant women without discussion with a consultant Obstetrician.

Although it is well established that antenatal magnesium sulphate administered to women at risk of preterm delivery at gestations less than 30 weeks significantly

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reduces the risk of neonatal cerebral palsy, however administering the medication during the transfer adds another level of risk of maternal magnesium toxicity.

Magnesium sulphate administered shortly before birth may assist in reducing the risk of cerebral palsy and protect gross motor function in those babies born preterm. The effect may be greatest at early gestations and is not associated with adverse long-term fetal or maternal outcome.

**CAUTION:** There is significant risk of inadvertent overdose due to incorrect administration of magnesium sulphate resulting in maternal respiratory / cardiac arrest

For guidance on the administration of magnesium sulphate in preterm women refer to KEMH Clinical Guideline: Obstetrics & Gynaecology Preterm Labour: Magnesium Sulphate for Neuroprotection of the Fetus.

### 2.2.2 Antibiotics

- If progressive preterm labour occurs, group B Streptococcus antibiotic prophylaxis must be prescribed as per WACHS Prevention of Maternal and Newborn Sepsis Policy (Including Group B Streptococcus)
- If evidence of urinary tract sepsis is seen on urine microscopy, antibiotics must be prescribed. See KEMH Clinical guideline Antibiotic Treatment for Urinary Tract Infection
- If there is clinical chorioamnionitis or generalised sepsis associated with preterm labour, blood cultures, a urine specimen and vaginal swabs must be taken and broad spectrum intravenous antibiotics must be commenced as per WACHS Prevention of Maternal and Newborn Sepsis Policy (Including Group B Streptococcus).

**Signs of chorioamnionitis include:**

- Maternal fever greater than 38 °C (present in 95–100% of cases).
- Maternal tachycardia greater than 100 beats per minute (bpm) (present in 50–80% of cases).
- Persistent fetal tachycardia greater than 160 bpm (present in 40–70% of cases).
- Generalised uterine tenderness.
- Offensive smelling vaginal discharge.
- Increased white cell count (greater than 15x109/L).
- Elevated C-reactive protein (CRP).

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## 3. Definitions

| | |
|---|---|
| **Chorioamnionitis** | A bacterial infection that occurs before or during labour. The name refers to the membranes surrounding the fetus: the "chorion" (outer membrane) and the "amnion" (fluid-filled sac). The condition occurs when bacteria infect the chorion, amnion, and amniotic fluid around the fetus. |
| **Antepartum haemorrhage** | Bleeding from the genital tract after 20 completed weeks gestation. |
| **Tocolysis** | Drugs that are used to delay delivery for a short time (up to 48 hours) if labour begins too early in **pregnancy**. |

## 4. Roles and Responsibilities

**All Staff** are required to work within policies and guidelines to make sure that WACHS is a safe, equitable and positive place to be.

## 5. Compliance

Failure to comply with this policy may constitute a breach of the WA Health Code of Conduct (Code). The Code is part of the Integrity Policy Framework issued pursuant to section 26 of the *Health Services Act 2016* (WA) and is binding on all WACHS staff which for this purpose includes trainees, students, volunteers, researchers, contractors for service (including all visiting health professionals and agency staff) and persons delivering training or education within WACHS.

WACHS staff are reminded that compliance with all policies is mandatory.

## 6. Records Management

All WACHS clinical records must be managed in accordance with Health Record Management Policy.

## 7. Evaluation

Maternity and Emergency Department managers must evaluate this policy by reviewing all cases of suspected preterm labour and reviewing care against the requirements of this policy to identify any unwarranted clinical variation. Results are to be reported to the local Maternity clinical governance committee.

Any incidences of maternal or fetal harm associated with care delivery problems during preterm labour must be reported in Datix CIMS and investigated as per the WA Health Clinical Incident Management Policy

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## 8. Standards

National Safety and Quality Health Service Standards - 1.1b/c, 1.7a, 1.27a, 5.5, 6.1, 6.11, 8.8, 8.10

## 9. Legislation

*Heath Services Act 2016* (WA)

## 10. References

KEMH Premature Labour guidelines
WA Preterm Birth Prevention Initiative
Queensland Clinical Guidelines – Preterm Labour and Birth

## 11. Related Forms

Nil

## 12. Related Policy Documents

**KEMH**

Clinical Practice Guideline Infections: Urinary tract infection in pregnant women

Clinical Practice Guideline Preterm Labour

Clinical Guideline: Obstetrics & Gynaecology Preterm Labour: Magnesium Sulphate for Neuroprotection of the Fetus

**WACHS**

Assessment and Management in the Emergency Department – Clinical Practice Standard

Imminent Unplanned Birth at a Non-Birthing Site Policy

Maternal and Newborn Care Capability Framework Policy

Prevention of Maternal and Newborn Sepsis Policy (Including Group B Streptococcus)

## 13. Related WA Health System Policies

MP 0095/18 Clinical Handover Policy

## 14. Policy Framework

Clinical Governance, Safety and Quality

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## 15. Appendices



**This document can be made available in alternative formats on request for a person with a disability**

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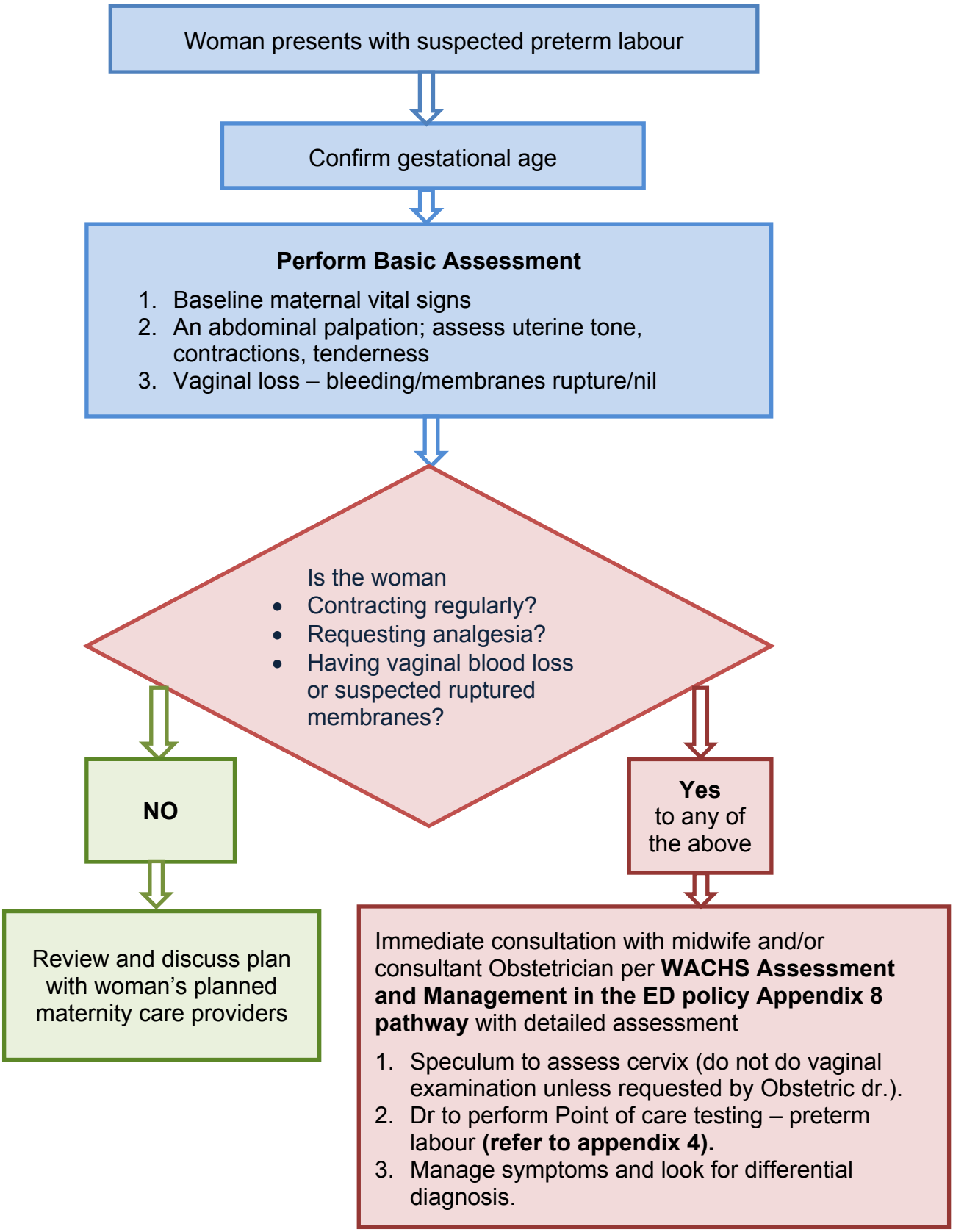
## Appendix 1 – Quick Reference Guide (Non- Maternity Sites)

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## Appendix 2: Preterm Birth Risk Factors for assessment

The cause of spontaneous preterm labour remains unidentified in up to half of all cases.[13] Although many factors have been associated with an increased risk of spontaneous preterm birth (PTB) [3], there is a relative paucity of high level research.[13, 14] The majority of women with traditional risk factors will not experience PTB and of those women who do, many have no identifiable risk factors. Whether or not some risk factors are markers for other conditions and/or other risk factors is unknown.

**Table 2 - Risk factors associated with preterm birth**

| Aspect | Consideration |
|---|---|
| **Maternal characteristics** | • Aged under 20 or over 40<br>• Smokers (13.64% versus 8.1 non-smokers)<br>• Women residing in rural and remote areas5: (13.5% versus8.4% major cities)<br>• Aboriginal women (14.2% versus 8.5% non-indigenous women)<br>• Late, limited or no antenatal care<br>• Low socio-economic status<br>• High or low body mass index (BMI) |
| **Medical and pregnancy conditions** | • Multiple pregnancy (66% of twins and 98.2% triplets and higher)<br>• Presence of fetal fibronectin (fFN) in the vaginal secretions<br>• Short cervical length<br>• Previous preterm birth - 30% will give birth prematurely in a subsequent pregnancy<br>• Bacterial vaginosis (double the risk)<br>• Urinary tract infections (most common cause of PTB)<br>• Vaginal bleeding<br>• Assisted reproduction techniques (double the risk)<br>• Preterm prelabour rupture of membranes (PPROM)<br>• Surgical procedures involving the cervix<br>• Uterine anomalies<br>• Polyhydramnios/oligohydramnios<br>• Chronic medical conditions<br>• Acute medical conditions (e.g. preeclampsia, antepartum haemorrhage)<br>• Previous caesarean section at full dilatation. |

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## Appendix 3: Fetal Fibronectin (fFN) Testing and Results

NOTE: In the Emergency department (non-maternity site) preterm birth point of care testing must only be undertaken by a doctor (or midwife if available).

Quantitative fFN testing has the ability to provide a quantifiable test result that better informs management over and above qualitative tests that only provide a 'positive' or 'negative' result (e.g. non-quantitative fFN/Quickcheck® or Actim Partus®).

**Table 3 - Fetal fibronectin testing**

| Aspect | Consideration |
|---|---|
| **Context** | • fFN is a glycoprotein thought to promote adhesion between the fetal chorion and maternal decidua<br>➢ Normally present in low concentrations in the cervicovaginal secretions between 18 and 34–36 weeks gestation, rising as term approaches[2]<br>• Elevated levels of fFN (typically greater than 50 ng/mL) in cervicovaginal secretions after 22 weeks gestation are associated with an increased risk of PTB[34]<br>• A negative fFN means that 99.5% of women will not give birth within 7 days and 99.2% not within the next 14 days[2] Consider use of the QUIPP® app to assist with interpretation and management decisions<br>**Caution** is to be exercised where a woman return a negative test however has persistent, regular uterine contractions. |
| **Indications** | **Symptomatic women:**<br>• **Between 22+0 and 36+0 weeks gestation** *and*<br>• Intact membranes *and*<br>• Cervical dilatation less than or equal to 3 cm |
| **Contraindications** | • Cervical dilatation more than 3 cm.<br>• Ruptured membranes.<br>• Cervical cerclage in situ.<br>• Presence of soaps, gels, lubricants or disinfectants. |
| **Relative contraindications** | • Visual evidence of moderate or heavy bleeding.<br>• Within 24 hours of vaginal intercourse. |
| **Procedure** | • Performed during sterile speculum examination prior to any digital examination of the cervix or vagina<br>• Use only sterile water as a lubricant<br>• Obtain the sample from the posterior fornix of the vagina<br>• Follow test kit instructions |
| **Quantitative fFN testing** | • Quantitative fFN testing may improve assessment of overall risk[37], reduce unnecessary transfer and ultimately reduce longer term costs[38]<br>• Avoids unnecessary interventions<br>• Identifies women for targeted interventions<br>• Provides reassurance to health care providers and the woman |

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**Table 4 - Inpterpreting Ffn results**

**Interpreting Results**:

| fFN level ng/ml | Preterm birth ≤7 days from test | Preterm birth ≤14 days from test | Preterm birth <34 weeks |
|---|---|---|---|
| **1-9** | 1% | 1.8% | 1.5% |
| **10-49** | 0% | 1.6% | 8.2% |
| **50-199** | 0% | 7.7% | 11.5% |
| **200-499** | 14% | 29% | 33% |
| **≥500** | 38% | 46% | 75% |

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## Appendix 4: Qualitative PTB POCT (non-maternity sites)

Qualitative testing is only one of the determining factors used in in the assessment of risk of preterm labour and birth, taking into account the clinical context.

PartoSure is a rapid, point-of-care test that detects placental alpha macroglobulin-1 (PAMG-1) in the vaginal secretions of pregnant women.

For use in women with;

- Singleton pregnancy (not twins)
- Intact membranes.
- <3cm cervical dilatation
- 22+0 – 36+0 weeks gestation
- Can be utilised after recent intercourse.

PartoSure has a:

- moderate positive predictive value (PPV):
  - 76%. will give birth within 7 days
- high negative predictive value (NPV):
  - 98.3%. will not give birth within 7 days
- **Caution** interpret a NPV with caution where a woman continues to have persistent regular contractions.

**Results:**

- A positive (+ve) result will appear as two lines, a test line and a control line. The presence of a very light test line is to be interpreted as a positive result.
- A negative (-ve) result will appear as one distinct line, a control line.
- The absence of a distinct control line is to be interpreted as an invalid result.

**Management**

- **Positive Result**
  - Contact regional Obstetrician on call to develop care plan including transfer as a priority.

- **Negative Result**
  - Contact regional Obstetrician to determine management of symptoms, non-urgent transfer if required and consider differential diagnosis.

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