

# PRETERM LABOUR WITH INTACT MEMBRANES

## CLINICAL GUIDELINE MSCA.MBC.2.1

### Definition of preterm labour

- The onset of labour after 24 and before 37 completed weeks of gestation.
- Labour is defined by regular uterine contractions (at least one every 10 min) with cervical change. Cervical change is a dilation of more than 2 cm at the internal os and a cervix length of less than 1 cm.

### Definition of threatened preterm labour

- Presumed labour after the gestation of 24 and before 37 completed weeks with documented regular uterine contractions (at least one every 10 min) but with no evidence of cervical change.

### Risk factors for preterm labour

- Previous second trimester loss
- Previous preterm birth
- Previous cervical procedures
- Recent history of UTI or other genitourinary infection
- Domestic violence or abdominal trauma
- Polyhydramnios
- Multiple pregnancy
- Antepartum haemorrhage
- Placenta praevia
- Recent abdominal surgery

### Initial assessment and workup of preterm labour

#### General assessment

- Obtain history, especially enquiring about symptoms of rupture of membranes (SROM), onset of contractions, lower abdominal pain, cramps or pressure, lower backache, dysuria, offensive or increased vaginal discharge, vaginal bleeding, and passage of show.
- Enquire about predisposing risk factors for preterm labour.
- Check antenatal record for any risk factors.
- Check antenatal blood results.
- Check whether fetal anomaly scan was normal.
- Verify the correct gestation.

## General examination

- Check maternal blood pressure, temperature, pulse, respiratory rate (saturation) and urine dipstick
- Assess uterine activity by abdominal palpation for 10 minutes
- Palpate presenting part abdominally
- Consider an ultrasound if gestational age, placental location or fetal presentation uncertain
- Obtain a CTG if gestation > 27w0d (if gestation less than this, discuss with attending doctor if electronic fetal monitoring is indicated)
  - If CTG pathological – commence intrauterine resuscitation
    - Turn patient onto left lateral position
    - Give 250mls normal saline fluid bolus (if patient does not have pre-eclampsia)
    - Only give facemask oxygen if the mother requires oxygen to maintain her own saturations > 94%
    - Call Doctor immediately
    - If no recovery, contact doctor and prepare for emergency caesarean section immediately

## Obstetric examination

- Perform a sterile speculum examination if suspected spontaneous rupture of membranes (SRM) or PV bleeding
- Assess for signs of cervicitis or genital tract infection
- Visualise the cervix to assess for dilatation
- If no evidence of rupture of membranes, do a vaginal examination to assess for cervical dilation, effacement, position, consistency and station

## Additional special investigations

- Ward Hb
- Urine dipstick
- Urine MCS

## General Management

### Threatened preterm labour (Regular uterine contractions but no cervical change)

- Assess whether patient has risk factors for preterm labour
- If no risk factors for preterm labour, monitor uterine activity and repeat vaginal examination four hours later
- If there are no cervical changes four hours later, she can be discharged BUT she needs to be advised to return if the contractions increase in severity, there is a show, rupture of membranes, any vaginal bleeding, decreased fetal movement, or continuous abdominal pain
- If at risk for preterm labour, monitor uterine activity, and repeat vaginal examination after 2-4 hours
- If no cervical change, do not commence tocolysis or BMZ but observe overnight
- Repeat vaginal examination four hours later to reassess the cervix only if patient is still having regular uterine contractions
- The doctor needs to be informed if there is an increase in the severity of contractions, vaginal bleeding, a show or rupture of membranes
- **A TRANSVAGINAL CERVICAL LENGTH OF  $\geq$  30MM CAN BE SEEN AS A VALUABLE NEGATIVE PREDICTOR AND THE PATIENT CAN BE CONSIDERED FOR DISCHARGE**

### Confirmed preterm labour (contractions & cervical change but intact membranes)

- Admit the patient
- Look for a possible cause for the preterm labour
- Do a rectovaginal swab (prior to antibiotic administration) – for group B Streptococcus culture
- Collect a midstream urine sample for MCS (prior to antibiotic administration)
- If delivery appears imminent, discuss with paediatrician immediately
- Administer corticosteroids to enhance fetal lung maturity: Betamethasone 12 mg IMI stat and repeat after 24 hours (or Dexamethasone)
- Commence tocolysis (discussed later) for suppression of labour unless contraindicated
- Suppression to continue for 24 hours after the last dose of steroids.
- Assess the need for Antibiotic therapy (discussed later)
- Commence MgSO<sub>4</sub> for fetal neuroprotection from 26-32 weeks if delivery is imminent in next 24 hours
- Vitals signs to be done 6hrly
- Continuous CTG monitoring while contracting - 6hrly CTG when contractions subside
- Pad checks 6hrly to assess for PV bleeding or SROM
- Vaginal examination 4hrly while still contracting and no SROM
- Dr to be contacted if SROM or PV bleeding or progressing in labour
- Patient can be discharged after she has had no contractions for 24-48 hours after tocolysis was stopped
- Patient needs to be clearly advised on when to return i.e., contractions, show, vaginal bleeding, and rupture of membranes.
- Limit exercise, and avoid strenuous work but bedrest not shown to be beneficial
- Patient to be seen weekly until 34 w

## Tocolysis in preterm labour

- Tocolytic therapy prolongs pregnancy to provide the benefit of administering antenatal corticosteroids
- Indicated for women in preterm from viability to 33w6d with certain gestation (1850g if uncertain gestation)

### Contraindications for tocolysis

- Mother does not consent
- Gestation > 34w 0d
- Pathological or suspicious CTG
- Intrauterine fetal death
- Lethal fetal abnormality
- Suspected clinical chorioamnionitis
- Severe hypertensive conditions
- Abruptio placenta
- Severe IUGR (<3rd percentile)

### Relative contraindications for tocolysis

- Gestation age remote from viability - to be discussed with the neonatologist/paediatrician
- Antepartum haemorrhage of unknown cause

## Drugs and dosages

### **Short-acting Nifedipine (Adalat®)**

- Use as the 1st line of treatment
- 10mg PO (per os) stat then 10mg every 15min for 4 doses. Maintain 10-20mg PO every 6 hours for 24 hours **OR** 30mg stat, possibly add 20mg stat if still contracting after 30 minutes, then 20 mg 8 hourly
- Contraindications: cardiac disease, hypotension, hypertension
- Do not give Nifedipine if SBP ≤ 100 and/or DBP ≤60
- Side-effects: headache, dizziness, nausea, flushing, tachycardia

### **Indomethacin (Indocid®) <32 weeks**

- Used as a 2nd line treatment if still contracting after administration of Nifedipine or if Nifedipine contra-indicated
- 50 - 100mg PR (per rectum) loading dose, followed by 25 – 50mg 6hrly PR/PO 4 – 6 hourly for 24 hours
- Contra-indications: gestational age ≥ 32w0d, gastric ulcers, allergy to NSAIDs, renal or hepatic impairment, asthma, maternal platelet dysfunction or bleeding disorder
- Side-effects: nausea, heartburn, fluid retention, suppression of platelets

## **Atosiban (Tractocile®)**

- Used as a 3rd line of treatment when Nifedipine or Indomethacin not suppressing contractions adequately or contraindicated

### Indications:

- From 26 completed weeks until 33 completed weeks (intact membranes)
- PROM until 30 weeks (according to Medical Scheme funding rules)
- Contractions of at least 30 seconds duration at a rate of  $\geq 4$  every 30 min
- Cervical dilation of 1 to 3 cm and effacement  $\geq 50\%$

### Contraindications:

- Gestational age  $<26w$
- Gestational age  $>33w6d$
- PROM  $>30w$

### Dose:

Administered IVI in 3 stages:

| STEP | REGIMEN  | INFUSION RATE | ATOSIBAN DOSE |
|------|--|---------------|---------------|
| 1    | 0.9ml IVI bolus                                      | Over 1 min    | 6.75mg        |
| 2    | 3hrs IVI loading infusion 300 $\mu$ g/min            | 24ml/hr       | 18mg/hr       |
| 3    | Subsequent IVI infusion 100 $\mu$ g/min for 24 hours | 8ml/hr        | 6mg/hr        |

### Preparation for IVI infusion after the bolus dose:

- Infusion can be diluted using 0.9% normal saline, ringers lactate or 5% glucose solution
- Withdraw 10 mL solution from a 100 mL infusion bag and discard
- Replace it with 10 mL Atosiban 7.5 mg/ml concentrate for solution for infusion from two 5 ml vials to obtain a concentration of 75 mg Atosiban in 100 mL
- The loading infusion is given at 24 mL/hr (18 mg/hr) for three hours
- Thereafter the infusion rate is reduced to 8 mL/hr (6mg/hr)
- Prepare new 100 mL bags in the same way

### Side-effects:

Nausea, headache, dizziness, hot flushes, vomiting, tachycardia, hypotension

### Monitoring of IV Atosiban:

- Continuous CTG for the first 4hrs of the infusion
- Hourly vital signs until infusion rate decreased to 8ml/hr, then 4hrly
- If contractions persist, continuous CTG
- If contractions cease, 6hrly CTG

## Antenatal steroids in Preterm Labour

Indications: periviability – 33w6d AND at significant risk of preterm birth within seven days. A single rescue dose can be considered if more than seven days have passed.

Contraindications: maternal septicaemia

Drug and dosage: Betamethasone (Celestone®) 12 mg IMI stat, repeat the same dosage after 24 hours. Consider administering second dose of steroids after 12 hours if risk of preterm delivery increasing. A single rescue dose could be considered (<34 weeks) if more than 7 days has passed since initial course and the risk of preterm delivery remains high.

Side-effects and complications:

- Hyperglycaemia - Caution in women with Diabetes – will need close blood glucose monitoring
- Glycosuria (avoid glucose screening for 1wk)
- Pulmonary oedema

## Role of antibiotics in preterm labour

Indications:

- Maternal or fetal infection
- Preterm or prolonged rupture of membranes

Drugs and dose:

- Ampicillin 2 g IVI 6 hourly for 48 hours, then Amoxicillin 500 mg PO 8 hourly for 5 days
- AND Erythromycin 500 mg PO 6 hourly for seven days
- Metronidazole (Flagyl®, Trichazole®) 400 mg PO 8 hourly for 5 days (**this is only to be added if clear signs of symptomatic bacterial vaginosis on a vaginal swab**)
- For penicillin allergy erythromycin only

RCOG recommends intra-partum antibiotic prophylaxis against Group B Streptococcal disease for women with confirmed preterm labour

## The role of Progesterone in preterm labour

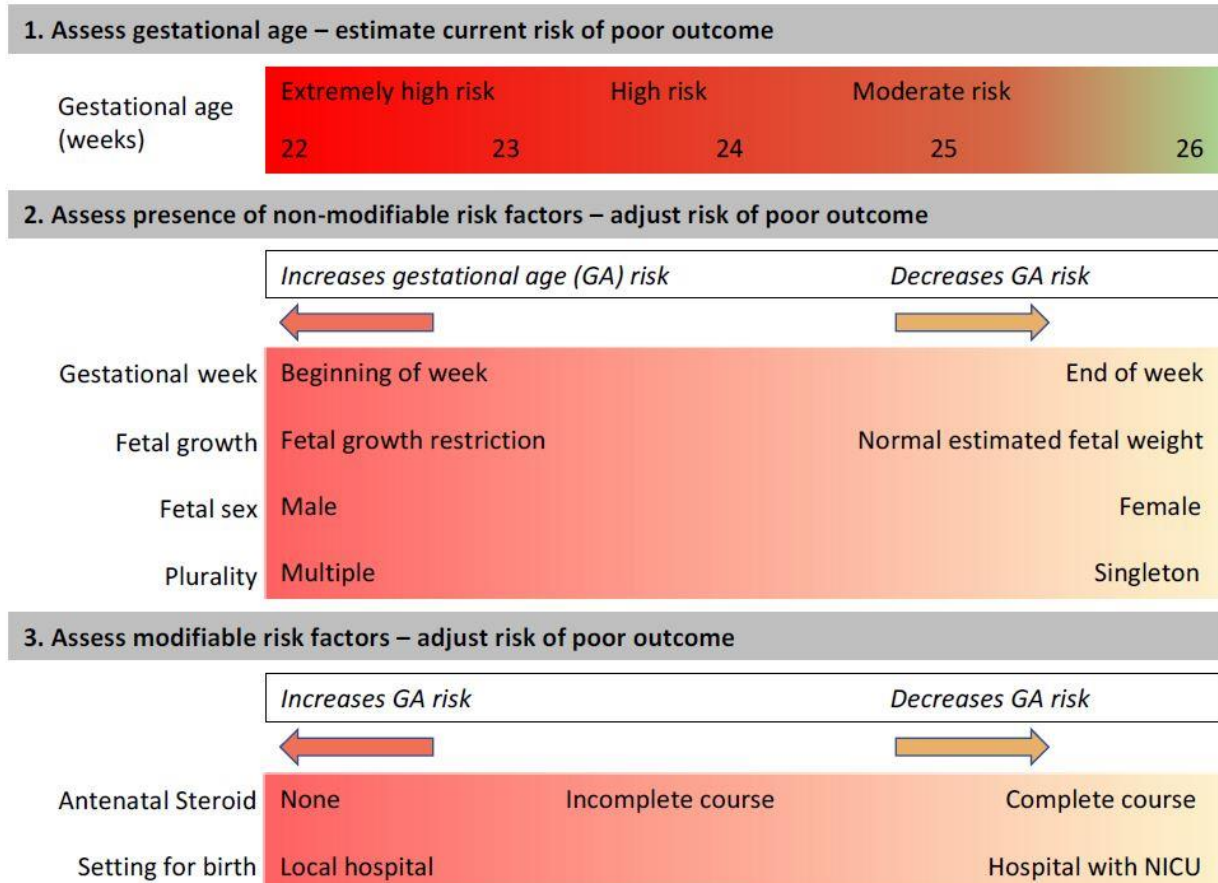
There is no strong evidence that exists at this point for the use of routine progesterone administration during preterm labour or threatened preterm labour.

## Antenatal care in a patient at risk of preterm labour

- Pregnancy to be booked at 8 to 10 weeks of pregnancy
- History to be taken regarding any current signs of infection (bladder and vagina)
- Booking visit to include RPR, HIV, hepatitis B
- Urine MCS
- Vaginal swab if signs of vaginal infection
- Baseline transvaginal cervical length at 13 weeks
- Transvaginal cervical length to be done at 16w, 20w, 24w
- Discuss progesterone treatment with the couple if shortened cervix
- Patient to be counselled regarding the signs of preterm Labour

## Management of extreme preterm birth before 27 weeks

Management decisions at this very early stage are best based on assessment of the risks for the baby and shared decision-making with close parental involvement. A visual aid can be used to determine whether the baby is at extremely high risk, high risk or moderate risk for severely adverse outcomes (example from the British Association of Perinatal Medicine, 2019). In general, palliative care (comfort-focused) is most appropriate for infants at extremely high risk for poor outcome while active care (survival focused) is most appropriate for infants at moderate risk.



## Definitions

| Term, Acronym or abbreviation | Definition  |
|-------------------------------|---|
| AROM                          | Artificial Rupture of Membranes   |
| BMZ                           | Bethamethazone  |
| CTG                           | Cardiotocograph   |
| DBP                           | Diastolic Blood Pressure  |
| PTL                           | Preterm Labour  |
| SBP                           | Systolic Blood Pressure   |
| SROM                          | Spontaneous Rupture of Membranes  |
| Tocolysis                     | Suppression of uterine contractions for the goal of delaying delivery                                 |
| Vitals                        | This includes vital signs – temperature, heart rate, respiratory rate, blood pressure and saturations |
| VTE risk                      | Venous Thromboembolism risk   |

### Authorship

These guidelines were drafted by a clinical team from Mediclinic and were reviewed by a panel of experts from SASOG and the BetterObs™ clinical team in 2019 and revised by the scientific committee of BetterObs™ in 2022. All attempts were made to ensure that the guidance provided is clinically safe, locally relevant and in line with current global and South African best practice. Succinctness was considered more important than comprehensiveness.

All guidelines must be used in conjunction with clinical evaluation and judgement; care must be individualised when appropriate. The writing team, reviewers and SASOG do not accept accountability for any untoward clinical, financial or other outcome related to the use of these documents. Comments are welcome and will be used at the time of next review.

Released on 2023 01 20



## History and version control

| Author  | Version | Details of update   | Effective date |
|---|---------|---|----------------|
| Mediclinic Cape Gate Working Group            | 1       | Initial Release   | 2017 10 01     |
| External Expert Obstetrician                  | 1.1     | Validated   | 2017 10 01     |
| A. Hall                                       | 1.2     | Rebranded to Clinical Guideline<br>Minor editing  | 2019 12 01     |
| SASOG Scientific Committee<br>Dr C Groenewald | 2.1     | Reviewed<br>No change in content<br>Use of steroids deleted if at risk for preterm labour but no change in cervical dilatation after 2 hours<br>Added the following to tocolysis ( Nifedipine) dosage: <b>OR</b> 30mg stat, possibly add 20mg stat if still contracting after 30 minutes, then 20 mg 8hrly<br>Added caution for the use of steroids in diabetics – will need blood glucose monitoring<br>Use of antibiotics were removed from list of indications for women with preterm labour with intact membranes<br>2 weekly transvaginal cervical length measurement after 24 weeks was removed | 2023 01 20     |

## Approved by

| Department/ Area/ Group/ Forum | Representative name   | Signature   | Designation            | Date       |
|--------------------------------|-----------------------|---|------------------------|------------|
| Clinical Department            | Dr Gerrit De Villiers |  | Chief Clinical Officer | 2023 04 27 |