South Australian Perinatal Practice Guidelines

# Tocolysis for uterine hypercontactility

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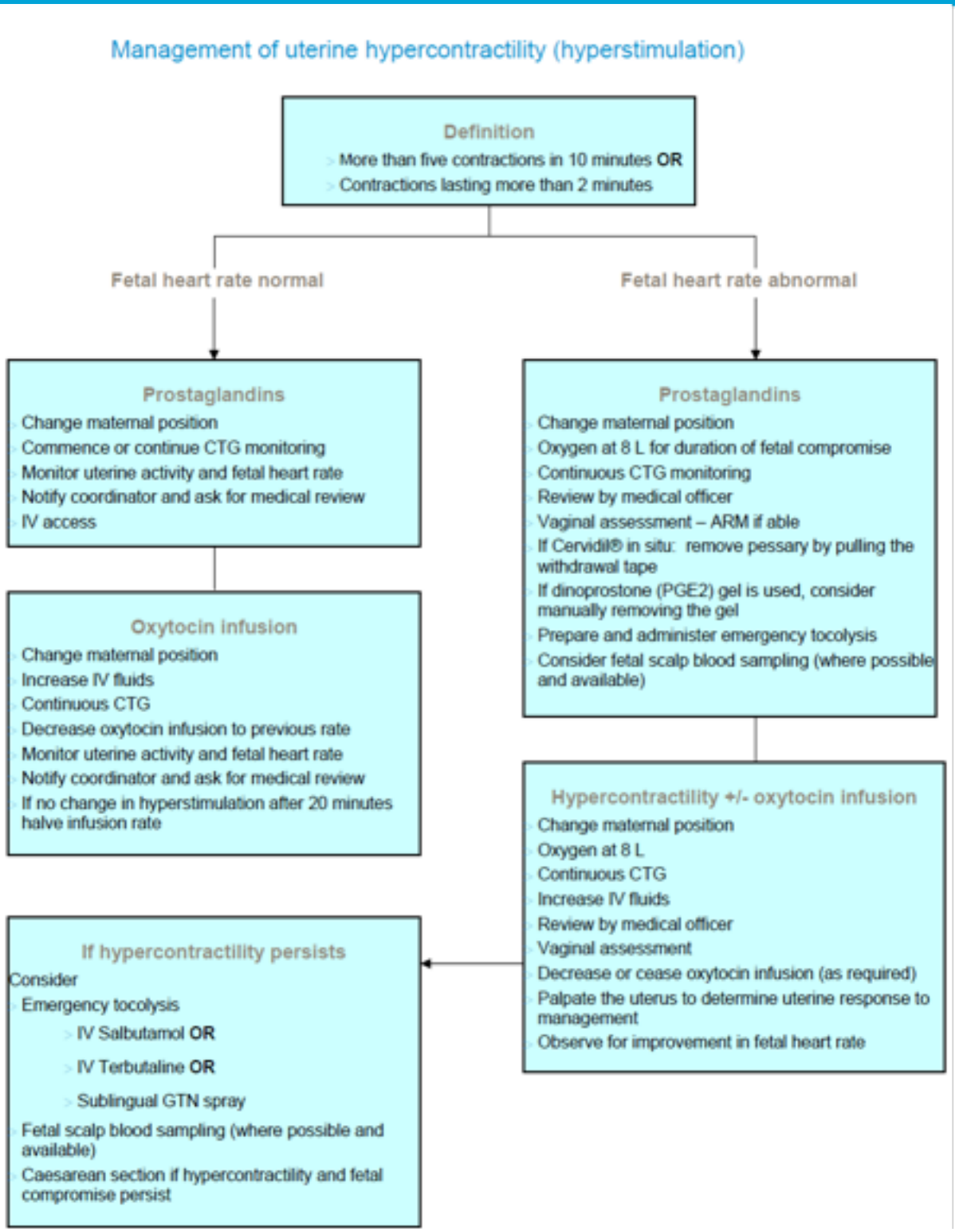


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## Introduction

- Uterine hypercontractility (hyperstimulation) may occur spontaneously in labour; however, it is frequently associated with prostaglandin agents or oxytocin infusion (see PPG 'Induction of labour')
- A retrospective study found that administration of tocolytic treatment with ß$_2$-adrenergic drugs following PGE$_2$ induced uterine hyperstimulation was successful in normalising uterine contractions and reversing fetal compromise within 5 minutes in 98 % of cases (NICE 2008)
- No evidence has been identified relating to the management of uterine hyperstimulation caused by induction with intravenous oxytocin (NICE 2008)

## Uterine hypercontractility (hyperstimulation)

- Uterine hypercontractility refers to more than five contractions in 10 minutes, or contractions lasting more than 2 minutes and may or may not be associated with fetal compromise (NICE 2008)
- Early recognition is essential as uterine hyperstimulation causes poor utero-placental perfusion leading to a decrease in fetal oxygenation and eventually fetal compromise (MNCN 2010)
- A raised uterine baseline pressure also contributes to reduced utero-placental perfusion. Sustained baseline pressures above 15 mmHg lead to fetal heart rate changes (MNCN 2010)

**Obstetric salbutamol: 5 mL ampoule 5 mg / 5 mL**

**Dosage and administration**

- Using a 1 mL syringe, draw up 0.25 mL (250 micrograms) of salbutamol
- Add to a 10 mL syringe and make up to 10 mL with sodium chloride 0.9 % (25 micrograms per mL)
- Give intravenous salbutamol slowly in 50 microgram boluses up to 250 micrograms in total (often 100 micrograms will be sufficient)
- **Ensure monitoring of maternal pulse whilst bolus doses are administered**
- **Stop IV administration if maternal pulse > 140**

**Side effects**

- Fetal and maternal tachycardia, maternal hypotension, ventricular ectopics, supra-ventricular tachycardia, ventricular fibrillation, pulmonary oedema, hypoxia – secondary to increased oxygen demands + / - fluid shift in lungs, hyperglycaemia

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**Last reviewed: 12 April 2011**

## Management of uterine hypercontractility

- Employ emergency management measures
  - Place the woman in left lateral position
  - Administer oxygen via face mask at 8 litres / minute
  - Ensure good intravenous (IV) access and give bolus of fluid as indicated

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- Continuous electronic fetal monitoring and observe for signs of fetal compromise
- Palpate uterus to determine response to management
- Alert theatre and duty anaesthetist for possible emergency delivery

- If emergency management measures fail, administer tocolysis
- Adverse effects on the fetus can be avoided by minimising periods of hyperstimulation and administering treatment in a timely manner
  - Either salbutamol or terbutaline tocolysis may be administered
  - Nitrolingual® pumpspray may be given if salbutamol or terbutaline are not available (see below)
- In cases where fetal compromise is sustained despite the above emergency measures, consider need to expedite delivery

## Salbutamol tocolysis regimen

### Indications

- Persistent uterine hypercontractility with fetal compromise
- Tocolysis before attempting external cephalic version for breech presentation < $37^{+6}$ weeks gestation

### Contraindications

- A bolus dose of salbutamol is contraindicated in:
  - Cardiac disease
  - Hypertension
  - Hyperthyroidism

### Relative contraindication

- Diabetes

## Terbutaline tocolysis regimen

### Indications

- Persistent uterine hypercontractility with fetal compromise
- Tocolysis before attempting external cephalic version for breech presentation < $37^{+6}$ weeks gestation
- These are not TGA approved indications

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### Contraindications

- Sympathomimetic amine hypersensitivity

### Relative contraindications

- Cardiac disease
- Hypertension
- Hyperthyroidism
- Diabetes

**Terbutaline: 1 mL ampoule 500 micrograms / 1 mL**

### Dosage and administration

- May be given subcutaneous or intravenous

### Subcutaneous

- Using a 1 mL syringe, draw up 0.5 mL (250 micrograms) of terbutaline and administer subcutaneously

### Intravenous

- Using a 1 mL syringe, draw up 0.5 mL (250 micrograms) of terbutaline
- Add to a 10 mL syringe and make up to 10 mL with sodium chloride 0.9 % (25 micrograms per mL)
- Give intravenous terbutaline slowly in 50 microgram boluses up to 250 micrograms in total (often 100 micrograms will be sufficient)
- **Ensure monitoring of maternal pulse whilst bolus doses are administered**
- **Stop IV administration if maternal pulse > 140**

### Side effects

- Tremor, headache, nervousness, cardiovascular effects including arrhythmia, tachycardia, palpitation, muscle cramps, hypokalaemia

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## Sublingual glyceryl trinitrate spray (Nitrolingual®)

- Nitrolingual® pumpspray is a metered dose spray that delivers glyceryl trinitrate 400 micrograms per spray emission

### Action

- The principal pharmacological action of glyceryl trinitrate is relaxation of vascular smooth muscle, producing a vasodilator effect on both peripheral arteries and veins, with more prominent effects on the latter

### Indications

- Persistent uterine hypercontractility associated with fetal compromise (not a TGA approved indication)

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## Contraindications

- Acute circulatory failure (shock, circulatory collapse)
- Cardiac disease
- Pronounced hypotension (systolic BP < 90 mm Hg)
- Severe anaemia

## Dosage and administration

- 1 metered spray (400 micrograms) administered as spray droplets beneath the tongue (do not inhale)
- Repeat after 5 minutes if hypertonus sustained
- No more than 2 metered doses should be given

**Administration**

- Nitrolingual Pumpspray should be primed before using it for the first time by pressing the nozzle five times
- If Nitrolingual Pumpspray has not been used for seven days a priming of one spray will be necessary
- If the product has not been used for more than four months it will need to be primed several times (maximum five) until an even spray is obtained
- The woman should be in a sitting position
- The bottle should be kept vertical with the nozzle head uppermost
- Hold the opening in the nozzle head as close to the open mouth as possible and spray under the tongue
- Close the mouth immediately after each dose

## Side effects

- Headache
- Hypotension
- Reflex tachycardia or bradycardia
- Rarely nausea, vomiting, flushing

## References


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## Abbreviations

| | |
|---|---|
| IV | Intravenous |
| L | Litre(s) |
| CTG | Cardiotocograph |
| ARM | Artificial rupture of the membranes |
| TGA | Therapeutic Goods Administration |
| $PGE_2$ | Prostaglandin $E_2$ |
| mmHg | Millimetres of mercury |
| % | Percent |
| mg | Milligram(s) |
| mL | Millilitre(s) |
| i.e. | That is |
| > | Greater than |
| < | Less than |
| +/- | Plus or minus |
| NICE | National Institute for Clinical Excellence |
| RANZCOG | Royal Australian and New Zealand College of Obstetricians and Gynaecologists |
| URL | Uniform resource locator |

## Version control and change history

**PDS reference:** OCE use only

| Version | Date from | Date to | Amendment |
|---|---|---|---|
| 1.0 | 18 Aug 04 | 12 Apr 11 | Original version |
| 2.0 | 12 Apr 11 | current | |
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