BACKGROUND/RATIONALE

This guideline has been based on the Victorian Standard for Induction of Labour (IOL) – Oxytocin (Syntocinon) Induction and Augmentation of Labour Clinical Practice Guideline prepared by the Maternity Newborn Clinical Network which has the objective of providing Maternity Service providers in Victoria with an agreed Standard of Care based on the best currently available evidence.

DESIRED OUTCOME/OBJECTIVE

- Labour is induced or augmented using an intravenous oxytocin (Syntocinon) infusion to expedite birth where clinically indicated.

DEFINITIONS

Augmentation: is an intervention that increases the rate of the progress of spontaneous labour.

Cervical ripening: is the process of IOL employed when the cervix is unfavourable in order to facilitate dilation as labour is established.

Induction of labour (IOL): is an intervention designed to artificially initiate cervical ripening and uterine contractions resulting in progressive effacement and dilation of the cervix and birth of the baby.

Oxytocin (Syntocinon): a synthetically produced oxytocin. Oxytocin is produced by the posterior pituitary gland. It stimulates the smooth muscle of the uterus, producing rhythmic contractions. Oxytocin has a pressor and anti-diuretic effect; however synthetic oxytocin only has a slight effect in this regard.

Postpartum haemorrhage (PHH): is where blood loss is greater than 500ml following a vaginal birth or greater than 1000ml following caesarean section.

Prolonged pregnancy: is a pregnancy with a gestation of more than 41 complete weeks. Gestation should be based on the agreed estimated date of confinement (EDC). The EDC is based on the last known menstrual period (LNMP) and modified by the earliest dating scan, if outside the margin of error of the scan. A dating scan is recommended for all women <14 weeks gestation.
Uterine hyperstimulation (tachysystole) may occur with or without FHR changes and is defined as:
- 4 or more contractions in 10 minutes over a 30 min period or
- Contractions lasting more than 2 minutes in duration or
- Contractions of normal duration occurring within 60 seconds of each other

**Bishop Score**: is a measure of cervical suitability for IOL. A favourable Bishop score is >7.

<table>
<thead>
<tr>
<th>Score</th>
<th>Dilation</th>
<th>Effacement</th>
<th>Station</th>
<th>Position</th>
<th>Consistency</th>
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<tbody>
<tr>
<td>0</td>
<td>closed</td>
<td>0-30%</td>
<td>-3</td>
<td>Posterior</td>
<td>Firm</td>
</tr>
<tr>
<td>1</td>
<td>1-2 cm</td>
<td>40-50%</td>
<td>-2</td>
<td>Mid-position</td>
<td>Moderately firm</td>
</tr>
<tr>
<td>2</td>
<td>3-4 cm</td>
<td>60-70%</td>
<td>-1,0</td>
<td>Anterior</td>
<td>Soft</td>
</tr>
<tr>
<td>3</td>
<td>5+</td>
<td>80+%</td>
<td>+1,+2</td>
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</table>

**INDICATIONS**

**Intrapartum**
- For induction or augmentation of labour
- Cephalic presentation
- Must be at the instigation of the lead obstetrician

**Postpartum**
- Syntocinon Infusion during labour
- PPH (Post Partum Haemorrhage)
- High risk of PPH (e.g. prolonged labour, grand multiparity, multiple birth)
- Poorly contracted uterus following birth
- Following caesarean section

**CONTRAINDICATIONS**

Never proceed with **IOL** in women with the following:
- Malpresentation (transverse or oblique lie, footling breech, brow presentation)
- Previous classical uterine incision
- Cord presentation
- Spontaneous labour
- Abnormal cardiotocograph (CTG) or known fetal compromise
- Placenta praevia or vasa praevia
- Active genital herpes
- Persisting maternal fever
- Any other contraindication to labour or vaginal birth

**Augmentation** of spontaneous labour should not proceed without lead obstetrician consultation.

**ISSUES TO CONSIDER**
- If the cervix is unfavourable (Bishop Score <6) induction with vaginal prostaglandins should be considered (refer to **CPG/I037 – Induction of Labour with PGE2 vaginal gel**).
- For women with intact membranes an artificial rupture of membranes (ARM) should be performed prior to commencing induction with oxytocin.
- Oxytocin to induce labour in women with a history of previous caesarean is not recommended at Ballarat Health Services and should be discussed with the lead obstetrician prior to use.
- Oxytocin should not be used within 6 hours of administration PGE2 vaginal gel (refer to **CPG/I037 – Induction of Labour with PGE2 vaginal gel**).
Oxytocin to augment labour in a multigravida should be discussed with the lead obstetrician prior to use.

Physiological management of the third stage of labour is contraindicated in women receiving oxytocin during labour.

Fetal well-being should be established prior to commencement of oxytocin to ensure there are no fetal heart rate abnormalities. A 20-30 min CTG should be performed prior to commencing induction.

Women with a high parity (>4) should not have oxytocin commenced without discussion with the lead obstetrician.

Possible Adverse Effects

- **Cardiovascular**: hypotension, tachycardia, cardiac arrhythmia, ECG changes following IV administration of concentrated solutions, rarely hypertension, anaphylactic reaction.
- **Water Intoxication**: can result from high doses or prolonged periods of infusion of oxytocin in electrolyte-free fluids.
- **Neonatal**: bradycardia/fetal distress, hyponatraemia, jaundice, convulsions, retinal haemorrhage, skin rashes, cardiac arrhythmias, anaphylactoid reactions have been reported occasionally.
- **Overdosage**: may lead to hypertonic contractions, foetal distress, foetal hypoxia, cervical and vaginal laceration, PPH, placenta abruption, amniotic embolism, water intoxication, uterine rupture (more likely to occur in women who have had more than one oxytocic agent/previous uterine surgery/multiparity).
- **Other**: nausea, vomiting, PPH, pelvic haematoma, afibrinogenemia.
- **Drug Interactions**: Prostaglandins may potentiate the effect of oxytocin, careful monitoring is recommended with concomitant administration. Some Inhalation Anaesthetics may enhance the hypotensive effect of oxytocin and reduce its oxytocic effect. When given during or after caudal block anaesthesia, oxytocin may potentiate the pressor effect of sympathomimetic vasoconstrictor agents.

**EQUIPMENT**

- Volumetric (Gemini) pump
- Volumetric pump (Gemini) IV tubing
- Y extension set (Heidelberg)
- IV pole and tapes
- 10 units of Syntocinon (ampoule)
- Additive Label
- 1000mL flask of Compound sodium lactate (Hartmann’s Solution) or Normal Saline
- 2 or 5 mL syringe
- 19g needle
- CTG monitor
**PROCEDURE**

<table>
<thead>
<tr>
<th>INTRAPARTUM</th>
<th>PROCESS STANDARDS:</th>
<th>KEYPOINTS:</th>
</tr>
</thead>
</table>
| **1. Assessment** | Document baseline maternal assessment:  
- Maternal blood pressure  
- Pulse rate  
- Uterine activity over a 10 minute period (palpated)  
- Vaginal loss  
- Perform abdominal palpation to confirm fetal lie and presentation – document findings  
- Perform a CTG (min 20 mins)  
- Assess and document vaginal examination and Bishops Score  
- Explain the anticipated outcome, benefits and risks of IOL with oxytocin to the woman and obtain a verbal consent | Notify medical officer if observations outside of normal parameters  
- Ensure cephalic presentation and engagement of the fetal head  
- Establish fetal wellbeing prior to commencing oxytocin  
- To reassess indication and method of induction  
- Ensure the information is culturally and language appropriate and the support person is included in the process |

| **2. Communication** | Notify shift coordinator that an infusion is to be commenced | The woman will require one-to-one care for the duration of the labour  
- Staffing needs will need to be assessed prior to commencing IOL  
- Notify the lead obstetrician if the infusion will be delayed |

| **3. Documentation** | The medical officer must write the order for the oxytocin infusion on the Intravenous Orders chart (MR 645) | The order must be legible, with the type of fluid, dosage of oxytocin and rate of infusion documented.  
- If the rate of the infusion is according to the Protocol Oxytocin Infusions it may be written APP.  
- The lead Obstetrician may alter the rate if clinically indicated and documented accordingly. |
### 4. Perform Artificial Rupture of Membranes (ARM)
- Document the results of the vaginal examination, the instrument used for the ROM and the colour and quantity of the liquor
- The preferred instrument is an amniotomy hook. Alligator or other toothed forceps should not be used unless the ARM is technically difficult.
- The practice of obtaining a fetal hair to confirm membrane rupture is usually not necessary

### 5. IV access is obtained

### 6. Discuss the options for pain management and that an epidural may be commenced prior to or during the IOL
- If the woman requests an epidural infusion the Obstetric Resident must inform the Anaesthetist or Ana. Reg who is on call.
- Commence IV hydration. Ensure IV hydration is attached to the Heidelberg extension arm with the valve.
- The epidural may be inserted prior to commencing the oxytocin infusion.
- The oxytocin should not normally be stopped during procedures

### 7. Gather equipment and prepare infusion
- Add ordered amount of Oxytocin (Syntocinon) to intravenous fluid bag (1000mls)
- Label flask and sign entries on the IV orders chart.
- Must be checked by two midwives
- Attach the Y extension set (Heidelberg) to the main line, spike the IV bag and prime the line.
- The syntocinon infusion line should be attached to the arm of the Y extension set (Heidelberg) without the valve.

### 8. Perform checking procedure
- Check for right person, time, dose, route and drug, with another midwife
- Ensure no known allergy to oxytocin
- Check the order against the patients wrist band and UR number
- Ask the woman if she has any known allergies

### 9. Commence the oxytocin infusion according to *PRO/S001 – Oxytocin (Syntocinon) infusions*.
- An IV pump MUST be used to deliver the infusion. This allows a well regulated rate, optimising efficacy and safety.

### 10. Continuous CTG monitoring must be
- If the a continuous trace cannot be


<table>
<thead>
<tr>
<th>Postpartum Process Standards:</th>
<th>Key Points:</th>
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| 1. The woman must be assessed prior to birth if possible and the need for a postpartum oxytocin infusion established. | - Syntocinon infusion during labour  
- PPH (Post Partum Haemorrhage)  
- High risk of PPH (e.g. Prolonged labour, grand multiparity, multiple birth) |

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### 11. Monitor and Document:
- Uterine activity – strength, frequency and duration for a 10 minute period every 30 minutes
- Fetal wellbeing including fetal heart rate and continuous CTG monitoring
- Maternal vital signs – pulse and blood pressure every half hour
- Temperature every 2-4 hours
- Record the units of oxytocin in the flask and the rate of the infusion in mLs/hr at the beginning of each set of observations
- A strict fluid balance chart
- Other labour observations – abdominal palpation, vaginal loss, liquor colour and quantity and vaginal examinations as routine for labour.

- Contraction frequency and duration should be reconciled with uterine activity recorded on the CTG
- Strength of contraction is a subjective assessment requiring manual palpation (by midwife or doctor) correlated with how the woman perceives her contractions
- To reduce the likelihood of water intoxication from a high dose prolonged oxytocin regimen, when a second flask of oxytocin is required the lead obstetrician must be notified and modified solution may be necessary (e.g. doubling the units and halving the infusion mLs rate)

### 12. Cease the Infusion if:
- Uterine hyperstimulation occurs (Refer to CPGU005 Uterine Hyperstimulation (Tachysystole) - management of)
- Abnormal CTG / fetal distress
- Category 1 Caesarean Section
- Signs of obstructed labour
- Any other maternal or fetal complication occurs

The case must be discussed with the lead obstetrician if the infusion is to be recommenced.

- If the infusion is no longer required it is recommended that the infusion bag and line is removed to avoid any further administration of oxytocin.

### 13. Following birth, a further syntocinon infusion will be commenced – see the postpartum guidelines below.
- Order is written up on the Intravenous Orders chart (MR 645)

**The infusion bag may be prepared when birth is imminent but must be stored outside the room until it is to be commenced postpartum**

- Poorly contracted uterus following birth
- Following caesarean section
- When writing the order the type of fluid, added dose of syntocinon and rate need to be documented.

<table>
<thead>
<tr>
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**POSTPARTUM – 40 units syntocinon in 1 litre of normal saline or hartmanns run at 250mL/hr.**

- Postoperative Caesarean Section cases will return to ward with this running

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<td>- Ensure no known allergy to oxytocin</td>
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<th>4. <strong>Commence</strong> the oxytocin infusion as ordered</th>
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<td>- Check the order against the patients wrist band and UR number</td>
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<tr>
<td>- Ask the woman if she has any known allergies</td>
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<tr>
<th>5. <strong>Monitor and document:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Vital signs 15 minutely for 2 hrs following birth and increase the frequency if PPH, poorly contracted uterus or maternal compromise.</td>
</tr>
<tr>
<td>- 30 minutely for 2 hrs (RPAO) following caesarean section, hourly for 2 hours and then four hourly and document on postnatal frequent observations chart</td>
</tr>
<tr>
<td>- Assess lochia (colour and amount), fundas, urine output and pain every 15 minutes for 2 hours or as per postoperative care</td>
</tr>
</tbody>
</table>

- The woman should stay in the labour ward for the 2hrs of observation (excluding caesarean women); if it is necessary to transfer the woman then these observations must continue in the postnatal ward
- If not already insitu, woman may require a catheter to help keep bladder empty.
- May require analgesia for involution/postoperative pain

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CPG/S001: Oxytocin (Syntocinon)-Induction and augmentation of labour (2011)
6. **When infusion is completed** assess the need for further treatment and if not required remove the flask and line

- Consider the following:
  - Is lochia, light to moderate, no clots, no large gushes
  - Is the fundus firm and central
  - Has the woman passed urine or has an indwelling catheter
  - Discuss with medical officer

**NOTES / PRECAUTIONS**

- Generally, intrapartum syntocinon infusions will be ordered as detailed in the *PRO/S001 Oxytocin (Syntocinon) Infusions* protocol, however there may be times when the dosage and rate parameters will be specified by the lead Obstetrician. When this occurs the rate parameters must also be documented on the IV order form.

- The effect of oxytocin stimulation on duration of labour is still not clear. It is associated with more frequent use of epidural analgesia and use of internal fetal heart-rate monitoring.

**RELATED DOCUMENTS**

**Internal**

- CPG/I038 Induction of labour with Prostaglandin E2 (PGE2) Vaginal Gel (Prostin)
- PRO/S001 Oxytocin (Syntocinon) Infusion
- CPG/U005 Uterine Hyperstimulation (Tachysystole) – management of
- PRO/T005 Tocolysis – Preterm Labour and Inhibition of Established Labour

**External**


**REFERENCES**


<table>
<thead>
<tr>
<th>Reg. Authority</th>
<th>Clinical Director of Women &amp; Children’s Health, Executive Directors, Nursing &amp; Medical Services</th>
<th>Date Effective: June 2006</th>
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<tbody>
<tr>
<td>Review Responsibility</td>
<td>Maternity Unit</td>
<td>Date Revised: June 2011</td>
</tr>
<tr>
<td>Original Author</td>
<td>Midwife</td>
<td>Date for Review: June 2014</td>
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<tr>
<td>Updated by</td>
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