BACKGROUND/RATIONALE

This guideline has been based on the Victorian Standard for Induction of Labour (IOL) with Prostaglandin E2 (PGE2) Vaginal Gel (Prostin) 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

- To use PGE2 Vaginal Gel (Prostin) to promote cervical ripening (softening and effacement) and to stimulate myometrial contractions where delivery is indicated but not urgent and increases the likelihood of a spontaneous vaginal birth.

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.

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 (EDD). The EDD 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.

Standard primipara: is a woman, 20-34 years of age, who has given birth for the first time, free of obstetric and specific medical complications and pregnant with a singleton pregnancy at term (37 weeks 1 day-40 weeks 6 days gestation), with a non-small for gestational age (greater than tenth percentile) infant and a head first (cephalic) presentation.

Uterine hyperstimulation (tachsystole) 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>
</tr>
</thead>
<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>

**CONTRAINDICATIONS**

Never proceed with PGE₂ IOL with the following:
- Bishop score ≥ 6
- Abnormal Cardiotocography (CTG) or known foetal compromise
- Persisting maternal temperature
- Vaginal bleeding
- Known hypersensitivity to PGE₂ or any constituents of the gel
- Contraindication to vaginal birth (e.g. placenta/vasa praevia, active genital herpes)
- Spontaneous labour
- Previous caesarean section
- Malpresentation

Relative contraindications (may be used with caution under lead obstetrician supervision):
- Multiparous women particularly grand multiparity (>5 previous births)
- Previous uterine hyperstimulation
- Ruptured membranes
- Mobile presenting part
- Asthma
- Cardiac disease
- Multiple pregnancy
- Epilepsy
- Glaucoma or raised intraocular pressure
- Unexplained vaginal discharge or abnormal uterine bleeding during the pregnancy

**ISSUES TO CONSIDER**

- Ensure the woman has had the opportunity to make an informed decision about her care and treatment after a full explanation of the benefits and risks associated with the procedure
- Bishop score must be ≤5 at the time of insertion
- PGE₂ vaginal gel (Prostin) must not be inserted into the cervical canal
- To reduce the risk of hyperstimulation (tachysystole):
  - Oxytocin (Syntocinon) should not be commenced within 6 hours of PGE₂ gel being inserted
  - Artificial rupture of membranes (ARM) should not be performed within 4 hours of insertion of PGE₂ vaginal gel
- Physiological management of the third stage is contraindicated when labour is induced
- Potential complications of PGE₂ administration include:
  - Uterine hyperstimulation (refer to CPG Uterine Hyperstimulation (Tachysystole) - Management of
  - Abnormal CTG
  - Hypersensitivity reactions
  - Vaginal irritation
  - Gastrointestinal disturbances (nausea, vomiting and diarrhoea) (rare in 1% or cases)
→ Placental abruption
→ Amniotic fluid embolism
→ Postpartum haemorrhage
→ Genital oedema

EQUIPMENT

- Gloves
- PGE\textsubscript{2} Vaginal Gel (1 or 2 mg)
- CTG machine
- Draw sheet to place over the woman
- Plastic protective sheet for bed

PROCEDURE

<table>
<thead>
<tr>
<th>PROCESS STANDARDS:</th>
<th>KEYPOINTS:</th>
</tr>
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<tbody>
<tr>
<td><strong>1. Assessment</strong></td>
<td><strong>Assessment</strong></td>
</tr>
<tr>
<td>Explain the procedure to the woman and obtain a verbal consent.</td>
<td>Explain the anticipated outcome, benefits and risks of IOL with PGE\textsubscript{2} in a cultural and language appropriate manner and the support person is included in the process.</td>
</tr>
<tr>
<td>Document baseline maternal vital signs and record:</td>
<td>Notify medical officer if observations outside of normal parameters.</td>
</tr>
<tr>
<td>→ Maternal blood pressure</td>
<td></td>
</tr>
<tr>
<td>→ Pulse rate</td>
<td></td>
</tr>
<tr>
<td>→ Uterine activity over a 10 minute period (palpated)</td>
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</tr>
<tr>
<td>→ Vaginal loss</td>
<td></td>
</tr>
<tr>
<td>Perform abdominal palpation to confirm foetal lie and presentation – document findings</td>
<td>Ensure cephalic presentation and engagement of the foetal head.</td>
</tr>
<tr>
<td>A normal CTG must be demonstrated within 6 hours (with no change in clinical situation) prior to insertion of PGE\textsubscript{2} gel.</td>
<td>Establish foetal wellbeing prior to commencing induction.</td>
</tr>
<tr>
<td>Assess and document vaginal examination and Bishops Score</td>
<td>To reassess indication and method of induction.</td>
</tr>
<tr>
<td>Assess uterine contractility</td>
<td>Contraction frequency and duration should be reconciled with uterine activity recorded on the CTG.</td>
</tr>
<tr>
<td><strong>2. Documentation</strong></td>
<td>Foetal wellbeing should be assessed and reported.</td>
</tr>
<tr>
<td>The CTG report must be documented including the presence (frequency) or absence of uterine activity</td>
<td>An abnormal CTG must be reported to the lead obstetrician prior to commencing IOL.</td>
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<tr>
<td>The medical officer must write the order for the PGE\textsubscript{2} on the medication chart once only section.</td>
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### Administration

- PGE\(_2\) vaginal gel should be removed from the refrigerator no more than 30 mins prior to insertion.
- Explain the procedure.
- Ensure the woman has an empty bladder.
- Ask the woman to lie flat with her feet on the bed in a modified lithotomy position.
- Ensure privacy and cover the woman with a sheet.
- Wash hands and don sterile gloves.
- A vaginal examination is performed and the posterior fornix of the vagina identified.
- The PGE\(_2\) vaginal gel is inserted via the syringe into the posterior fornix of the vagina avoiding the cervical canal.
- The administering clinician must ensure the PGE\(_2\) order is recorded and signed on the drug chart.

### Dosage

<table>
<thead>
<tr>
<th>Dose</th>
<th>Description</th>
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<tbody>
<tr>
<td>1st</td>
<td>1mg nulliparous and multiparous</td>
</tr>
<tr>
<td>2nd</td>
<td>1 or 2 mg nulliparous, 1 mg multiparous</td>
</tr>
<tr>
<td>3rd</td>
<td>1 or 2 mg nulliparous, 1 mg multiparous</td>
</tr>
</tbody>
</table>

**Note:** These dosages may be altered at the request of the prescribing medical practitioner depending on the Bishop's Score.

### Method of assembly

1. Remove protective end cap (to serve as plunger rod).
2. Insert protective end cap into the syringe.
3. Administer syringe content.

### Observations

- The woman should remain recumbent in lateral position for at least **30 minutes**.
- Continuous CTG monitoring for at least **one hour** after insertion.
- A midwife/medical officer must stay with the woman and observe the CTG for the **first 10 minutes**.
- **50 minutes** after insertion the midwife must remain with the woman for a full set of observations including:
  - Maternal blood pressure
  - Pulse rate
  - Uterine activity over a 10 minute period (palpated)
  - Vaginal loss
  - CTG report
- The woman may ambulate as desired after 1 hour if the CTG monitoring is normal.

- To retain gel and prevent supine hypotension.
- For assessment of foetal wellbeing and monitoring for potential uterine hyperstimulation.
- If the first 10 minutes is reassuring the midwife must review the woman and CTG intermittently (at least every 10 minutes).
- Any abnormalities (foetal heart rate, uterine activity) must be reported to the midwife in charge and the medical officer immediately.

**In the presence of abnormal foetal heart rate patterns and uterine hyperstimulation initiate emergency management principles and consider tocolysis refer to CPG Uterine Hyperstimulation (Tachysystole)-Management of**
5. **Subsequent observations**

- After the initial hour if no contractions are detected and fetal wellbeing is established:
  - Half hourly foetal heart rate (FHR) by intermittent auscultation using a Doppler ultrasound
  - Half hourly vaginal loss (ruptured membranes, liquor, bleeding)
  - Hourly maternal uterine activity over a 10 minute period
- After 3 hours, cease the frequent observations, if there are no contractions detected/or reported by the woman and no foetal concerns
- 6 hours after initial PGE2 vaginal gel insertion, a vaginal examination should be performed to reassess the Bishop score

- Strength of contractions is a subjective assessment requiring manual palpation correlated with how the woman perceives her contractions
- At this time another dose of PGE2 may be administered

6. **Continuous CTG monitoring should be recommenced if:**

- FHR abnormalities are auscultated
- Labour is established
- Spontaneous rupture of membranes (SROM) occurs
- The woman reports uterine activity
- The woman continues to contract but not in active labour

- If the woman reports uterine activity the CTG may be subsequently discontinued if the trace is normal and she is not in labour. If this occurs intermittent monitoring 2 hourly is recommended
- Transfer to a birth room if SROM occurs
- Obstetric review is required if it is unclear if the woman is labouring.

**RELATED DOCUMENTS**

**Internal**
- PRO/I029 - Induction of Labour (IOL) Booking Protocol
- CPG/S001 - Oxytocin (Syntocinon) – Induction and Augmentation of Labour
- PRO/S001 - Oxytocin (Sytocionon) Infusion
- CPG/U005 - Uterine Hyperstimulation (Tachysystole) - management of
- PRO/T005 - Tocolysis – Pretem Labour and Inhibition of Established Labour

**External**
REFERENCES


