# Induction and Augmentation of Labour

**Title:**
Induction and Augmentation of Labour

**Approving Authority:**
Edmonton Women’s Health Zone Clinical Department Executive Committee

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Induction and Augmentation of Labour

Introduction

Induction rates vary according to institution and location,\(^1\) as well as gestation and parity.\(^2\) The overall rate of induction in Canada has varied little over the past fifteen years remaining around 21\%.\(^3\) In Alberta in 2009 the highest induction rates occurred in women in the equal to or greater than 41 weeks gestation strata.\(^2\)

Maternal complications associated with induction include cesarean delivery, chorioamnionitis and uterine atony.\(^4\) Neonatal complications may be associated with early gestation, and atypical and or abnormal fetal heart rate patterns due to uterine tachysystole.\(^1\)

The patient must fully understand the risks and benefits associated with the decision to induce labour. The primary health care practitioner must ensure that the risks associated with induction outweigh the risks of waiting for spontaneous labour to ensue. The conversation between the primary health care practitioner and the patient with regards to risks and benefits of induction must be documented.

1. Policy

- Family practice physicians will follow the consultation requirements as outlined in:
  - Family Practitioner Guidelines for Physician Consultation and Transfer of Responsibility for Care – Edmonton Zone\(^5\)
  - Individual Privileging and Required Skills for Family Practitioners with Obstetrical Privileges – Edmonton Zone\(^6\)
- Midwives will follow the consultation requirements as outlined in:
  - Midwifery Guidelines for Physician Consultation and Transfer of Responsibility for Care – Edmonton Zone\(^7\)

2. Definitions

- **Cervical ripening**: Softening, effacing and/or dilating of the cervix by means of pharmacological or mechanical agents.
- **Induction**: Induction of labour is defined as the process of artificially stimulating the uterus to start labour.\(^8\) Membranes may be intact or ruptured. The goal of induction is to achieve vaginal delivery.
- **Augmentation**: Augmentation implies that the labour contractions are not adequate to ensure cervical dilation and/or fetal descent therefore, enhancement of contractions is necessary.

3. Management

Prior to ripening the cervix, inducing labour, or augmenting labour the primary health care practitioner will\(^[\text{NICE 2008}]\):

- Document assessment of gestational age\(^9\)
- Document the Bishop score\(^9\)
- Discuss with the patient indications for induction, benefits and potential risks.\(^9\)
- Obtain written consent
- Assess membrane status\(^9\)
- Assure fetal wellbeing via external fetal monitor strip (EFM) just prior to starting an induction\(^9,19\)
- Complete Induction Booking Form and Induction Orders and fax to appropriate labour and delivery unit (see Appendix A)
- Document rationale if there is no definitive reason for induction identified on the booking sheet
• Ensure patient knows that booking time and date is tentative and that she will receive a phone call from triage/labour and delivery unit when to go to hospital for procedure
• Ensure patient knows that may need to go home after induction if she does not go into established labour
• Ensure patient knows may require a change of medication (OXYTOCIN after PROSTAGLANDIN E2 gel) or a repeat of the procedure such as a Foley catheter reinserted.

4. Patient Selection

Accepted parameters for urgency of induction in the Edmonton zone are listed below. These parameters are based on risk reduction and the desire to pursue best outcomes for mothers and babies.

4.1 Indications requiring immediate induction:

4.11 Suspected fetal compromise
   • Biophysical profile score less than or equal to 4
   • Oligohydramnios (Amniotic Fluid Index (AFI) less than 5)

4.12 Intrauterine growth restriction with evidence of compromise
   • Growth curve less than 3\textsuperscript{rd} percentile
   • Serial ultrasounds showing lack of growth

4.13 Hypertensive disorder of pregnancy with proteinuria and adverse conditions
   • Diastolic blood pressure greater than 110 mmHg
   • Pulmonary edema
   • Oliguria
   • Epigastric pain
   • Seizures
   • Urine protein 3 grams/24 hours or a random, total urine protein/creatinine ratio (UPCR) greater than 30 mg/mmol
   • Elevated liver enzymes (greater than 2.5 the normal)
   • HELLP syndrome
   • DIC
   • Low platelets (Less than 80,000)
   • Uric acid greater than 2 standard deviations for GA

4.14 Significant maternal disease not responding to treatment

4.15 Other:
   • Significant, but stable, antepartum bleeding
   • Clinical signs of chorioamnionitis

4.16 Term prelabour rupture of membranes (GBS status positive, unknown, negative)\textsuperscript{1,8,20, NICE 2008}
4.2 Indications requiring induction within 2 days

4.21 Term prelabour rupture of membranes (PROM) (GBS status positive, unknown, negative) if patient does not wish immediate induction

4.22 Preterm prelabour rupture of membranes 34-36 weeks’ gestation1, 8, 20, NICE 2008
   - Documented fluid loss
   - Litmus/nitrazine pH greater than 6.5 or positive Ferning test

4.23 Gestational diabetes on insulin or diabetes prior to pregnancy (the quality of glucose control may dictate urgency) 1
   - falling insulin requirements
   - gestation age greater than 39 weeks gestation

4.24 Alloimmunization at or near term

4.25 Intrauterine growth restriction
   - Without evidence of compromise

4.26 Hypertensive disorder of pregnancy without adverse conditions
   - Minimal criteria: diastolic BP greater than or equal to 90 mm Hg on at least 2 occasions, 6 hours apart
     and/or
   - Proteinuria greater than or equal to 300 mg/L per 24 hour collection or a random, total urine protein/creatinine ratio greater than 30

4.27 Cholestasis of pregnancy 37 weeks gestation with severe jaundice24

4.28 Twins Monochorionic 360 weeks gestation
   Twins Dichorionic 370 weeks gestation 1, 21

4.3 Indications requiring induction within 4 days

4.31 Perinatal death
   - Previous pregnancy
   - Current pregnancy

4.32 Logistic reasons19
   - For example: history of precipitous labour and distance from hospital

4.33 Gestation 410 to 420 weeks gestation 1, 12, 19, NICE 2008
   - Dates confirmed by:
     - early clinical assessments
     - ultrasound less than 24 weeks gestation

4.34 Chronic disease, chronic hypertension, gestational hypertension without adverse conditions
   - Gestational age greater than 39 weeks gestation
   - Antihypertensive medication greater than 39 weeks gestation

4.35 Consider advance maternal age greater than or equal to 40 years at 39 weeks gestation18

4.36 Other obstetric/medical conditions
5. **Contraindications to induction**

Contraindications to induction are similar to those conditions that preclude spontaneous labour and vaginal delivery and include but are not limited to:

### 5.1 Fetal factors
- Macrosomia (greater than 90th%ile or 4500 grams)
- Abnormal fetal heart rate pattern
- Abnormal fetal lie or presentation
- Extreme prematurity

### 5.2 Maternal factors
- Prior classical or inverted T incision at cesarean delivery
- Significant uterine surgery such as full thickness myometrial incision
- Contracted or distorted pelvic anatomy
- Abnormal placentation
- Absolute cephalo-pelvic disproportion
- Conditions such as active genital herpes or cervical cancer
- Obstetrical, gynecological, or medical conditions that preclude a vaginal birth
- Convenience – patient and/or physician

6. **Caution to be used in labour induction**

Women with the following conditions require careful, individual assessment prior to commencing an induction and/or and augmentation:
- Grand multiparity (greater than 4)
- Vertex not engaged
- Unfavourable cervix
- Brow or face presentation
- Overdistention of the uterus
- Lower segment uterine scar
- Pre-existing hypertonus
- Prior history of difficult labour or traumatic delivery
7. Protocol for Ripening the Cervix

<table>
<thead>
<tr>
<th>Method</th>
<th>Dosage and/or Frequency</th>
<th>Fetal Health Surveillance</th>
<th>Vital signs</th>
<th>Comments</th>
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</table>
| Stripping/Sweeping of Membranes Technique:26 | • Insertion of a digit past the internal cervical os followed by three circumferential passes of the digit causing separation of the membranes from the lower segment.  
• When the cervix is closed, a massage of the cervical surface for 15-30 seconds is performed. | • Antepartum patients presenting as inpatients or outpatients to the obstetrical units will be assessed by nursing and house staff. An non stress test (NST) of at least 20 minutes duration will be completed.25  
• Laboring patients presenting as inpatients or outpatients to the obstetrical units will have routine nursing assessment. Patients between 36 and 41 weeks gestation who have a low risk obstetrical score may have auscultation assessment of the fetal heart rate on admission. All other patients will have a 20 minute electronic external fetal monitoring (EFM).25  
• For pregnancies between 36 weeks and 41 weeks gestation, if external fetal monitoring strip is normal and there are no risk factors, then fetal heart rate can be monitored by intermittent auscultation (IA).25  
• All patients being admitted in latent phase of labor require fetal heart rate assessment. The frequency of the assessment may range from every 30 minutes to every 4 hours while the patient is awake or as ordered by the primary care practitioner.25 | All patients presenting as inpatients or outpatients to the obstetrical units will have documentation of vital signs, history, physical exam.25 | • May reduce need for induction1, 8  
• Sweeping of the membranes during induction of labour increases success rates.26  
• This procedure has been associated with maternal discomfort during vaginal examination, bleeding, and irregular contractions.26 |
**Induction and Augmentation of Labour**

<table>
<thead>
<tr>
<th>Method</th>
<th>Dosage and Frequency</th>
<th>Fetal Health Surveillance</th>
<th>Vital signs</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>Foley Catheter: Technique</td>
<td>Foley Catheter is left in-place up to 24 hours or it may spontaneously fall out&lt;sup&gt;9&lt;/sup&gt;</td>
<td>Antepartum patients presenting as inpatients or outpatients to the obstetrical units will be assessed by nursing and house staff. An non stress test (NST) of at least 20 minutes duration will be completed.&lt;sup&gt;25&lt;/sup&gt; Laboring patients presenting as inpatients or outpatients to the obstetrical units will have routine nursing assessment. Patients between 36&lt;sup&gt;0&lt;/sup&gt; and 41&lt;sup&gt;3&lt;/sup&gt; weeks who have a low risk obstetrical score may have auscultation assessment of the fetal heart rate on admission. All other patients will have a 20 minute electronic EFM strip.&lt;sup&gt;25&lt;/sup&gt;</td>
<td>All patients presenting as inpatients or outpatients to the obstetrical units will have documentation of vital signs, history, physical exam.&lt;sup&gt;25&lt;/sup&gt;</td>
<td>Contraindications to the use of Foley Catheter: • low lying placenta&lt;sup&gt;9&lt;/sup&gt; • Relative contraindications:&lt;sup&gt;9&lt;/sup&gt; o rupture of membranes o genital tract infection</td>
</tr>
<tr>
<td>• size 14-18 Foley catheter with a 30cc balloon • pretest the Foley balloon before insertion • using sterile technique, insert the balloon past the internal os • inflate the balloon with 30-60cc of sterile water • the balloon is then retracted to rest against the internal os. To add more traction, pressure may be applied.</td>
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### 7.2 Pharmacological

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<th>Dosage and Frequency</th>
<th>Fetal Health Surveillance</th>
<th>Vital signs</th>
<th>Comments</th>
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<tr>
<td>DINOPROSTONE/CERVIDIL 10 mg on saturated tampon inserted transversely into the posterior fornix of the vagina (avoid excessive use of lubricant)</td>
<td>To be removed at the onset of labour or after 12 hours (in-situ 24 hours maximum)&lt;sup&gt;22, 23&lt;/sup&gt;</td>
<td>Normal non stress test (NST) prior to each medication insertion. Monitor fetal heart rate and uterine activity pattern for a minimum of 30 minutes following insertion by external fetal monitoring (EFM).&lt;sup&gt;11&lt;/sup&gt; Document fetal heart rate (FHR) every 30 minutes until discharge or as per orders from the primary care practitioner.</td>
<td>All patients presenting as inpatients or outpatients to the obstetrical units will have documentation of vital signs, history, physical exam.&lt;sup&gt;25&lt;/sup&gt;</td>
<td>Use caution with ruptured membranes&lt;sup&gt;13&lt;/sup&gt; Remain in supine position for 2 hours after insertion&lt;sup&gt;22, 23&lt;/sup&gt; Wait 30 minutes following removal of the DINOPROSTONE/CERVIDIL vaginal insert before starting OXYTOCIN&lt;sup&gt;13, 26&lt;/sup&gt; Refer to Edmonton Zone Women's Health Program Clinical Practice Guidelines Fetal Health Surveillance, September 2011, for management of fetal heart rate patterns and tachysystole.</td>
</tr>
<tr>
<td>Link to Alberta Health Services Pharmacy Services Drug Information: <a href="http://insite.albertahealthservices.ca/1521.asp">http://insite.albertahealthservices.ca/1521.asp</a></td>
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# Induction and Augmentation of Labour

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<th>Method</th>
<th>Dosage and Frequency</th>
<th>Fetal Health Surveillance</th>
<th>Vital signs</th>
<th>Comments</th>
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<tbody>
<tr>
<td>PROSTAGLANDIN E₂ gel 1 – 2 mg: empty contents of one syringe into posterior fornix of the vagina</td>
<td>May be repeated in 6 – 12 hours with minimal uterine activity Minimum time between dosages: 6 hours Link to Alberta Health Services Pharmacy Services Drug Information: <a href="http://insite.albertahealthservices.ca/1521.asp">http://insite.albertahealthservices.ca/1521.asp</a></td>
<td>• Normal non stress test (NST) prior to each medication insertion. • Monitor fetal heart rate and uterine activity pattern for a minimum of 30 to 120 minute period following insertion by external fetal monitoring (EFM)⁷,¹¹ • Document fetal heart rate (FHR) every 30 minutes until discharge or as per orders from the primary care practitioner.</td>
<td>All patients presenting as inpatients or outpatients to the obstetrical units will have documentation of vital signs, history, physical exam.¹⁸</td>
<td>Remain in lateral or supine position for 30 minutes after administration¹⁸ Wait 6 hours after insertion of gel before starting OXYTOCIN.²⁶ Side effects may include nausea, vomiting and diarrhea, vaginal irritation and tachysystole¹ PROSTAGLANDIN E₂ gel is a bronchodilator and is not contraindicated in asthmatics¹⁹ Refer to Edmonton Zone Women’s Health Program Clinical Practice Guidelines Fetal Health Surveillance, September 2011, for management of fetal heart rate patterns and tachysystole.</td>
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</table>

**Other Considerations**

| Other Considerations | On the rare occasion that PROSTAGLANDIN E₂ gel or DINOPROSTONE/CERVIDIL is ordered after OXYTOCIN has been discontinued uterine activity must be assessed and wait 1 hour prior to administering PROSTAGLANDIN E₂ gel or wait 30 minutes to administer DINOPROSTONE/CERVIDIL 10 mg on saturated tampon⁹ | Outpatient Management: Fetal well-being and absence of significant uterine activity must be assured prior to discharge. When induction is for suspected fetal compromise outpatient management is inappropriate.⁹ Outpatient management will include Induction of Labour: Cervidil® Vaginal Insertion Patient and Family Information (Appendix F) and an outpatient Telephone Tracking Record (Appendix G) will be initiated. | Prostaglandin use is associated with an increased risk of uterine rupture and therefore should not be used for trial of labour in a woman with a previous uterine scar.¹,¹¹ Prostaglandins should NOT be used as augmentation agents¹ |

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¹ Prostaglandins should NOT be used as augmentation agents.

¹⁸ Prostaglandin E₂ gel is a bronchodilator and is not contraindicated in asthmatics.

¹⁹ Refer to Edmonton Zone Women’s Health Program Clinical Practice Guidelines Fetal Health Surveillance, September 2011, for management of fetal heart rate patterns and tachysystole.
# Induction and Augmentation of Labour

## 8. Protocol for Induction and Augmentation

### Induction/Augmentation

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<th>Dosage and Frequency</th>
<th>Fetal Health Surveillance</th>
<th>Vital signs</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>Amniotomy</td>
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</table>

- Antepartum patients presenting as inpatients or outpatients to the obstetrical units will be assessed by nursing and house staff. An non stress test (NST) of at least 20 minutes duration will be completed.\(^2\)
- Laboring patients presenting as inpatients or outpatients to the obstetrical units will have routine nursing assessment. Patients between 36\(^+0\) and 41\(^+3\) weeks who have a low risk obstetrical score may have auscultation assessment of the fetal heart rate on admission. All other patients will have a 20 minute electronic external fetal monitoring (EFM).\(^2\)
- For pregnancies between 36 weeks and 41 weeks gestation, if external fetal monitor strip (EFM) is normal and there are no risk factors, then fetal heart rate can be monitored by intermittent auscultation (IA).\(^2\)
- All patients being admitted in latent phase of labor require fetal heart rate assessment. The frequency of the assessment may range from every 30 minutes to every 4 hours while the patient is awake or as ordered by the primary care practitioner.\(^2\)
- Auscultate the fetal heart rate (FHR) prior to and immediately after rupture of membranes.
- All patients presenting as inpatients or outpatients to the obstetrical units will have documentation of vital signs, history, physical exam.\(^2\)

- Creates a commitment to delivery. Trials indicate that it should be used in conjunction with OXYTOCIN in most instances, and should be commenced early in order to establish labour.\(^2\)
- Care must be taken in cases with a high presenting part (increased risk of cord prolapse).
- Document amount, color and consistency of fluid after amniotomy\(^1\)
- Refer to Edmonton Zone Women’s Health Program Clinical Practice Guidelines Fetal Health Surveillance, September 2011, for management of fetal heart rate patterns and tachysystole.
<table>
<thead>
<tr>
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<th>Dosage and Frequency</th>
<th>Fetal Health Surveillance</th>
<th>Vital signs</th>
<th>Comments</th>
</tr>
</thead>
</table>
| **OXYTOCIN** 20 units/1000 mL Lactated Ringers, or Normal Saline, or 2/3-1/3. | Starting dose: 1 – 2 mU/min Increase 1 - 2 mU/min no more frequently than every 30 minutes by continuous fetal heart rate monitoring (EFM). | Determine fetal heart rate pattern and uterine activity prior to initiation of OXYTOCIN and each time OXYTOCIN rate is changed by continuous fetal heart rate monitoring (EFM). | All patients presenting as inpatients or outpatients to the obstetrical units will have documentation of vital signs, history, physical exam. Document baseline blood pressure, pulse, respirations, and temperature on mother. | All patients receiving OXYTOCIN will be started on a Partogram OXYTOCIN must be administered via infusion pump Piggyback OXYTOCIN infusion into the main IV line at the lowest insertion site to prevent bolus administration. Infuse OXYTOCIN at the lowest dose to effect regular contractions. Usual dose for good labour is 8-12 mU/min. When uterine tachysystole occurs or fetal status is such that oxytocin is discontinued, and the fetal heart rate consequently has returned to normal, and the contraction frequency, intensity, and duration has consequently returned to normal, the OXYTOCIN may be restarted as follows: It has been 10-20 minutes since discontinuance, restart at half the rate prior to the episode of tachysystole It has been 30-40 minutes since discontinuance, restart at initial rate. |}

Family Practice Physicians are required to consult an Obstetrician prior to continuing OXYTOCIN infusion past 20mU/min.

OXYTOCIN may be started 30 minutes after removal of CERVIDIL.

or

6 hours after administration of PROSTAGLANDIN E1 gel

- Normal non stress test (NST) prior to commencing OXYTOCIN.
- Continuous external fetal monitoring (EFM) while OXYTOCIN solution is infusing.
- When the **FHR tracing is normal and The maternal condition is stable** and **The OXYTOCIN infusion rate is not increased** it may be appropriate to interrupt the continuous external fetal monitoring (EFM) tracing for up to 30 minutes to facilitate periods of ambulation.
- For atypical fetal heart rate tracing, initiate intrauterine resuscitation measures as indicated and contact the primary care practitioner immediately.
- For abnormal fetal heart rate tracing discontinue OXYTOCIN and initiate intrauterine resuscitation measures as indicated and contact the primary care practitioner immediately.
- If at anytime tachysystole should occur in which the fetus is not tolerating labor immediately turn off the OXYTOCIN as the situation dictates and initiate intrauterine resuscitation measures as indicated and contact the primary care practitioner.
- Refer to Edmonton Zone Women’s Health Program Clinical Practice Guidelines Fetal Health Surveillance, September 2011, for management of fetal heart rate patterns and tachysystole.
# 9. Complications and Management

<table>
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<tr>
<th>Potential complication</th>
<th>Management\textsuperscript{1,11}</th>
<th>Further Actions Required</th>
</tr>
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<tbody>
<tr>
<td><strong>Uterine tachysystole:</strong></td>
<td>Attempt to stop the exogeneous source of stimulation</td>
<td>Communication</td>
</tr>
<tr>
<td>• More than 5 contractions in a 10-minute window averaged over a 30-minute period. Tachysystole should always be characterized with an interpretation of the FHR tracing.</td>
<td>- if CERVIDIL in place, remove the tampon</td>
<td>• notify charge nurse</td>
</tr>
<tr>
<td>• Timing: Doubling or tripling may occur.</td>
<td>- if PROSTAGLANDIN E\textsubscript{2} gel in place, attempt to wipe it from cervix</td>
<td>• notify primary care provider</td>
</tr>
<tr>
<td>• Resting tone: Resting period between contractions of less than 30 seconds or the uterus does not relax between contractions.</td>
<td>- if OXYTOCIN infusing decrease rate by half if the FHR pattern is normal</td>
<td>• ask for help</td>
</tr>
<tr>
<td>• Duration: Contractions lasting more than 90 seconds</td>
<td>- if OXYTOCIN infusing and the FHR is atypical or abnormal, stop the OXYTOCIN infusion\textsuperscript{9}</td>
<td>Documentation</td>
</tr>
<tr>
<td></td>
<td>• Continue electronic fetal heart rate monitoring</td>
<td>• In patient chart</td>
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<td></td>
<td><strong>Initiate Intrauterine resuscitation measures:</strong></td>
<td>• Maintain partogram</td>
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<td></td>
<td>• maternal position change</td>
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<td></td>
<td>• oxygen per mask at 10 L/min</td>
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<td>• IV fluid bolus</td>
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<td>• notify the most responsible health care provider</td>
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<td></td>
<td><strong>Pelvic exam</strong> to rule out cord prolapse</td>
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<td></td>
<td><strong>Application of fetal scalp electrode</strong> if appropriate</td>
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<td><strong>Tocolysis</strong> (see Appendix C)</td>
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<td></td>
<td><strong>Immediate delivery</strong> if above measures do not lead to a normal fetal heart rate tracing</td>
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10. Documentation and Communication

10.1 Forms to be completed

- Physician to complete both pages of the Induction Booking form in full and deliver or fax to the appropriate Labour unit, allowing as much lead time as possible.
- Complete outpatient admission and assessment forms as required
- Complete in-patient admission and assessment forms for those patients admitted
- Commence a Partogram for those patients being induced with OXYTOCIN

10.2 Inform the team

- Keep nurse in charge informed of patient progress and concerns
- Open and timely discussion with most responsible care provider regarding dosing regimen for OXYTOCIN, patient status and progress.
Appendices

Appendix A .......Induction Booking and Patient Care Orders
Appendix B .......Standard Oxytocin Increment Table
Appendix D .......Tocolysis for Uterine Tachysystole
Appendix E .......Cervical Ripening and Induction Log
Appendix F .......Induction of Labour: Cervidil® Vaginal Insertion Patient and Family Information
Appendix G .......Outpatient Telephone Tracking Record
Appendix H .......References
Induction and Augmentation of Labour

Patient Name: ______________________________________
G_____ T_____ P_____ A_____ E______ L ______

EDD by Dates: _______________ EDD by Ultrasound: _______________
Gestational Age (at induction date): _____________

Doctor (name Consultant if required): ____________________ ____________________
Bishop’s Score Total (see below): ______

Indication(s) Requiring Immediate Induction

- Suspected fetal compromise
  - Biophysical Profile score of less than or equal to 4
  - Oligohydramnios (AFI less than 5)

- Intrauterine growth restriction with evidence of compromise
  - Growth curve less than 3rd percentile
  - Serial ultrasounds show lack of growth

- Significant, but stable, antepartum bleeding

- Clinical signs of chorioamnionitis

- Term Prelabour Rupture of Membranes (PROM) (GBS status unknown or positive or negative)

- Hypertensive disorder of pregnancy with proteinuria and adverse conditions
  - Diastolic blood pressure greater than or equal to 110 mmHg
  - Pulmonary edema
  - Oliguria
  - Epigastric pain
  - Seizures
  - Protein 3 gm/24 hours
  - Elevated liver enzymes (> 2.5 the normal)
  - HELLP syndrome / DIC
  - Low platelets (< 80,000)
  - Uric acid > 2 SD for GA

- Significant maternal disease not responding to treatment
  Specify: ______________________________________

Indication(s) Requiring Induction within 2 days

- Term Prelabour Rupture of Membranes (PROM) (GBS status unknown or positive or negative) if patient does not wish immediate induction

- Preterm Prelabour Rupture of Membranes 34-36+6 weeks (PPROM)
  - Documented fluid loss
  - Litmus/nitrazine pH greater than 6.5 OR positive fern test

- Gestational diabetes on insulin OR diabetes prior to pregnancy
  - Failing insulin requirements
  - Gestational age greater than 39 weeks

- Alloimmunization at or near term

- Cholestasis 37 weeks with severe jaundice

- Intrauterine Growth Restriction
  - Without evidence of compromise

- Gestational hypertension without adverse conditions. Minimal criteria of:
  - Diastolic BP greater than or equal to 90 mmHg on at least 2 occasions, 6 hours apart AND/OR
  - Proteinuria greater than or equal to 300 mg/L per 24 hour collection

- Twin Pregnancy
  - Monochorionic -36 and 0 weeks
  - Dichorionic -37 and 0 weeks

Indication(s) Requiring Induction within 4 days

- Perinatal death
  - Previous pregnancy
  - Current pregnancy

- Consider advanced maternal age greater or equal to 40 at 39 weeks gestation

- Logistic reasons (such as history of precipitous labour and distance to hospital)
  Specify: ______________________________________

- Gestation 41+0 weeks with evidence of normal fetal status
  Dates confirmed by:
  - Early clinical assessments
  - Ultrasound less than 24 weeks

- Chronic disease, essential hypertension, gestational hypertension without adverse conditions
  - Gestational age greater than 39 weeks
  - Antihypertensive medication greater than 39 weeks

- Other obstetrical/medical condition
  Specify: ______________________________________

<table>
<thead>
<tr>
<th>Bishop’s Score</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<tbody>
<tr>
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<td>1-2</td>
<td>3-4</td>
<td>5+</td>
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<tr>
<td>Effacement (length in cm)</td>
<td>3 cm (0-30%)</td>
<td>2 cm (40-50%)</td>
<td>1 cm (60-70%)</td>
<td>0 cm (&gt; 80%)</td>
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<tr>
<td>Station</td>
<td>+3</td>
<td>+2</td>
<td>+1 or 0</td>
<td>+1 or lower</td>
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<td>firm</td>
<td>medium</td>
<td>soft</td>
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<tr>
<td>Position</td>
<td>posterior</td>
<td>central</td>
<td>anterior</td>
<td></td>
</tr>
</tbody>
</table>
# INDUCTION BOOKING

## Patient Care Orders

1. All orders must be completed and signed by the physician. All co-signatures must be timed and dated within 24 hours.
2. Orders may be deleted by stroking the order out and initialing the entry, or by leaving prompt blank (boxes and / or lines).

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>1. Urgency:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>☐ Within 1 day ☐ Within 2 days ☐ Within 4 days</td>
</tr>
</tbody>
</table>

| Preferred induction date: |

<table>
<thead>
<tr>
<th>2. Type of Induction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Foley catheter</td>
</tr>
<tr>
<td>☐ ARM</td>
</tr>
</tbody>
</table>

Dinoprostone (Prostaglandin E2) – Initial dose:

| ☐ 1.0 mg vaginal |
| ☐ 2.0 mg vaginal |
| ☐ 10 mg vaginal insert (Cervidil®) |
| ☐ Oxytocin per Induction protocol (20 units/1000 mL IV fluid – standard concentration) |

Ordering Physician’s Signature _____________________________, MD.

---

### Informed Consent: (to be obtained by physician)

I, _____________________________ consent to Induction of Labour. Dr. _____________________________ will perform the induction with the assistance of other qualified healthcare staff, which may include medical students and residents. I understand my induction may not occur on the date or time planned. The nature and anticipated effects of the induction, including the risks and alternatives available, have been explained to me by _____________________________.

Signature of ☐ Patient ☐ or Parent ☐ or Legal Guardian Print Name

Date (day / month / year) _____________________________ Time _____________________________

---

### Note to Physician:

Complete both pages in full and deliver or fax to the appropriate Labour unit, allowing as much lead time as possible.

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Phone</th>
<th>Hospital</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fort Saskatchewan Hospital</td>
<td>Fax: (780) 342-3322</td>
<td>Royal Alexandra Hospital</td>
<td>Fax: (780) 735-4971</td>
</tr>
<tr>
<td>Grey Nuns Hospital</td>
<td>Fax: (780) 735-7663</td>
<td>Sturgeon Hospital</td>
<td>Fax: (780) 418-7393</td>
</tr>
<tr>
<td>Misericordia Hospital</td>
<td>Fax: (780) 735-2578</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix B

Standard Oxytocin Increment Table

An Obstetricians Reassessment and Order is required for all patients receiving OXYTOCIN dose greater than 20mu/min. The Family Physician requires a consultation to an Obstetrician when switching to an OXYTOCIN dose greater than 20mu/min.

<table>
<thead>
<tr>
<th>OXYTOCIN in 1000 mL</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>20 units</th>
</tr>
</thead>
<tbody>
<tr>
<td>milliunits/min</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
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<tr>
<td>18</td>
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<tr>
<td>19</td>
</tr>
<tr>
<td>20</td>
</tr>
</tbody>
</table>
Appendix C

Tocolysis for Uterine Tachysystole

NitroGLYcerin\textsuperscript{16}

Nitroglycerin is a vasodilating agent that relieves tension in smooth muscles and dilates peripheral veins and arteries. This relaxation of the smooth muscles extends to the uterine muscle. For this reason Nitroglycerin is used in the treatment of uterine tachysystole. NitroGLYcerin may also be used to relax the uterine wall during an external cephalic version.

\textbf{Caution:}
- use with caution in patients with severe renal or liver disease

\textbf{Contraindications:}
- Allergy to corn or corn products (IV preparation may contain dextrose)
- Hypersensitivity to nitroglycerin or other nitrates
- Severe anemia
- Hypotension or uncorrected hypovolemia
- Increased intracranial pressure
- Restrictive cardiomyopathy, constrictive pericarditis and pericardial tamponade
- Concurrent use of sildenafil (Viagra)

\textbf{Intravenous NitroGLYcerin}

- When intravenous NitroGLYcerin is administered in Obstetrics it is always administered direct IV by a physician
- Dilute to a concentration up to 0.4 mg/mL

\textbf{Supplied}
- NitroGLYcerin 50 mg/250 mL in a glass bottle = (0.2 mg / mL or 200 microgram/mL)
- NitroGLYcerin 50 mg/10 mL in a glass vial =(0.5mg/0.1mL or 50 micrograms/0.01 mL)

\textbf{Dosage:}
- IV direct, 50 – 100 microgram in incremental doses every 3 – 5 minutes to a maximum of 300 micrograms

\textbf{Clinical Implications}
\textbf{Maternal}
- Monitor blood pressure, heart rate, oxygen saturation
- Continuous ECG monitoring is required during nitroglycerin treatment, and for at least 15 minutes following drug discontinuation

\textbf{Fetal}
- Continuous fetal heart rate monitoring
Note: NitroGLYcerin IV cannot be mixed with any other medications
PVC containers absorb 40 – 80% of the nitroglycerin dose

The direct link to the Parenteral Manual is as follows:
http://www.intranet2.capitalhealth.ca/pharmacy/pm/pm_preview.asp?id=3375

NitroGLYcerin Spray

Supplied: 0.4 mg per spray

Dosage:
- Spray 1 time and direct spray under or onto tongue (patient not to inhale the spray)
- Patient should close her mouth briefly before the 2nd spray is administered.
- Not to exceed 3 metered sprays within a 15 minute period

Administration notes:
- Do not shake container prior to use
- Must prime the pump by spraying 3 sprays before administering a dose to the patient
- Moisten visibly dry sublingual tissue with water or normal saline prior to administering spray as this enhances absorption

Side Effects
- are dose related
- are exaggerated when patient is hemodynamically unstable
  - headache - dizziness - desaturation
  - tachycardia - palpitations - bradycardia
  - hypotension - weakness - flushing
  - rash - apprehension - restlessness
  - nausea - abdominal pain - muscle twitching
# Cervical Ripening and Induction Log Sheet

<table>
<thead>
<tr>
<th>URGENCY</th>
<th>INDICATION FOR INDUCTION</th>
<th>REASON</th>
<th>URGENCY</th>
<th>INDICATION FOR INDUCTION</th>
<th>REASON</th>
<th>Today's Day</th>
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</thead>
<tbody>
<tr>
<td>Within 1 Day</td>
<td>Suspected fetal compromise</td>
<td>1</td>
<td>Within 2 Days</td>
<td>Intrauterine Growth Restriction</td>
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<tr>
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<td>Intrauterine growth restriction</td>
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<td>Hypertensive disease of pregnancy without adverse conditions</td>
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<td>Significant antepartum bleeding</td>
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<td>Twin Pregnancy</td>
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<td>Clinical signs of chorioamnionitis</td>
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<td>Cholestasis</td>
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<td>Term PROM</td>
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<td>Hypertensive disease in pregnancy with adverse conditions</td>
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<td>Preinatal Death</td>
<td>16</td>
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<td>Significant maternal disease not responding to treatment</td>
<td>7</td>
<td></td>
<td>Consider advanced maternal age</td>
<td>17</td>
<td></td>
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<tr>
<td>Within 2 Days</td>
<td>Term PROM if pt does not wish immediate induction</td>
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<td>Gestation 41+0 with normal fetal status</td>
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<td>Diabetes</td>
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<td>Chronic disease/essential hypertension</td>
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<td>Alloimmunization at or near term</td>
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<td></td>
<td>Logistic reasons</td>
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**NOTIFIED AT:**

**DELIVERED ON:**

**RESCHEDULED TO:**

<table>
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<tr>
<th>NAME OF PATIENT</th>
<th>PHONE #</th>
<th>PHYSICIAN CONSULTANT</th>
<th>COMMENTS</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(G__P__T__; EDD; TYPE OF INDUCTION)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOKING SHEET</th>
<th>INPATIENT</th>
<th>OUTPATIENT</th>
<th>REASON</th>
<th>URGENCY</th>
</tr>
</thead>
</table>

**Please document in pencil**
Induction of Labour: Cervidil® Vaginal Insertion
Patient and Family Information

Some women need help to start the childbirth process (induce labour). This will tell you about how your labour can be induced with a Cervidil® Vaginal Insert. Please talk to your doctor, midwife, or nurse if you have any questions or concerns.

Why may labour be induced?
A doctor will suggest that labour be induced when it is in the best interest of the mother and baby to not continue the pregnancy. This may be because:

• the mother has health problems (e.g., high blood pressure or diabetes)
• the baby has health problems (e.g., is growing too slowly)
• the pregnancy is more than 1 week past the due date
• the bag of waters has broken and labour has not started

Your doctor will carefully assess you and your baby to ensure that induction is your best choice. Your doctor will also determine the best method to induce you. Before you are induced, your doctor will answer your questions. If you decide to be induced, you will need to sign a consent form.

How is labour induced?
Labour can be induced by:

• breaking the bag of waters
• giving intravenous (IV) drugs (for example - oxytocin)
• inserting medications into the vagina or cervix

What is Cervidil® Vaginal Insert?
Cervidil® vaginal insert can be used to help start labour. In comparison to other methods, Cervidil® lets you:

• walk around after a brief time in bed, and
• wait in the comfort of your own home for labour to start

The insert looks like a very small tampon (2 cm x 1.5 cm) with a long string. The string is pulled to remove the insert from your body. When placed in the vagina (birth canal), the insert swells and releases prostaglandin. Prostaglandin is similar to the hormone the body produces to start labour. It can prepare your cervix (bottom of your uterus or womb) for labour and start contractions.

What should I do the day of the induction?

• You may have a shower and a light breakfast if you desire.
• You should not smoke for at least 2 hours before going to the hospital. Nicotine can have harmful effects during the induction.
• Make sure your suitcase for the hospital is packed, but leave it at home for now.
• Take the prenatal papers that your doctor gave you to the hospital.
• You may wish to bring your partner or someone else to support you.
• Arrive at the hospital admitting department about 20 minutes before your appointment.

What happens once I am at the Hospital?

• The nurse will review with you the reason(s) for your induction of labour and find out if you have any concerns or questions.
• She will read your prenatal records and ask you questions about your pregnancy and your health.
• Your blood pressure, pulse and temperature will be taken.
• Your baby will be monitored for 20 – 30 minutes to make sure all is well with him/her.
• Your obstetrician/doctor will be told that you have arrived. An ultrasound of your baby may be done.
• A vaginal examination will be done to check your cervix and the baby’s position. Cervidil® will then be inserted at the back of your vagina.
Two to three inches of string will be tucked just inside of the vagina so that the insert can easily be removed after active labour has started, or 24 hours has passed, or there is a problem.

What happens after insertion?
- It takes about 30 – 40 minutes for the insert to swell and not fall out when you stand up.
- You will need to stay in bed for up to 2 hours and should not eat or drink during this time. You and your baby will be checked often.
- After the first 2 hours, the monitoring will be stopped and you may walk around for a while or your doctor may let you go home.
- You may be asked to stay in the hospital longer if your doctor wants you and your baby checked more often.
- If all is well, you may be discharged home.

What will I feel?
Normally it takes several hours before you feel contractions; you may feel some cramping before this. You may feel some backache, contractions or a warm feeling in your vagina at first.

What should I do when I go home?
You can shower, eat and do what you normally do while you wait for your labour to start. If you are under the care of a midwife, phone her when you are discharged.

We ask that you please:
- Phone __________ at ______ o’clock and every 4 hours after the Cervidil® was inserted. We will ask you some questions to find out how you are doing. If you are asleep at this time, call us when you wake up.
- Go to __________ at ______ o’clock (______ hours after Cervidil® was inserted) if you have not started labour. You and your doctor will decide the next steps.

The doctor may want to:
- Give you another dose of the medication
- Break your water to stimulate more labour
- Start giving you intravenous Oxytocin to stimulate more labour
- Send you home and return another day for a repeat induction

Are there any side effects?
Nausea, vomiting and diarrhea may occur, but is not common. Occasionally strong and long contractions occur. If this should happen to you, you and your baby will be watched very closely. You might need medication to relax the uterus and in rare instances you may need an emergency cesarean section.

Go to the hospital right away if you notice:
- Contractions every 5 minutes for 30 minutes
- Vaginal bleeding like a period
- Your bag of waters break
- Your baby is moving less

Pull out the insert and go to the hospital right away if you have:
- More than 5 contractions every 10 minutes
- Contractions lasting longer than 2 minutes
- More vaginal bleeding than your normal period
- You have fever, chest pains or shortness of breath or wheezing

If you have any concerns, call your doctor, midwife, or the Labour & Delivery unit:

Royal Alexandra  780-735-4848
Grey Nuns   780-735-7036
Misericordia  780-735-2764
Sturgeon  780-418-7325
## Baseline Patient History

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<th>Para</th>
<th>Gestation/EDC</th>
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<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Reason for Induction</th>
<th>Date/Time Prostaglandin Inserted:</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Significant Patient History:</th>
<th>Phone Number Patient can be reached at:</th>
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<tbody>
<tr>
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</table>

### Patient Questions Y/N

<table>
<thead>
<tr>
<th>Call #1 at:</th>
<th>Call #2 at:</th>
<th>Call #3 at:</th>
<th>Call #4 at:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

- Are you having contractions?
- Are you having 5 contractions in 10 minutes?
- Are your contractions 2 minutes long or longer?
- Has your water broken?
- Do you have vaginal bleeding like a period?
- Is your baby moving more/less than usual?
- Are you having any wheezing?
- Are you having any nausea or vomiting?

### Action Taken Y/N

- Patient told to return to hospital
- Patient told to pull insert
- Next call back time/date
- Nurses Signature:

### Considerations for Registered Nurses

* The patient is directed to call approximately every 4 hours after discharge.
* The patient should be directed to call at night only if she is awake.
* In the event that the patient doesn’t call back (except during the night), the staff should initiate a call to her after one hour has elapsed.
* If the patient answers yes to any of the above questions or her contractions are greater than (>5) 5/10 minutes she should be directed to pull the string to remove the insert and come directly to the hospital.
* If she says yes to any of these questions she should be told to come to the hospital.

### Comments

<p>| |</p>
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<tbody>
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</table>
References

1. The MOREOB Program (2011), Module 1, Induction of Labour, Salus Global Corporation


10. Induction booking sheet CH-0073, May 2006


13. Pharm Sciences Inc. Cervidil Dinoprostin 10 mg Vaginal Insert package insert. DC112C


19 Wing Deborah A, Principles of labor induction, Up-to-date, 2012

20 The More Ob Program (2013), Module 1, Prelabour Rupture of Membranes, Salus Global Corporation


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23 Alberta Health Services Insite Pharmacy Services Drug Information Micromedex available at http://www.micromedexsolutions.com/micromedex2/librarian


25 Edmonton Zone Women’s Health Program Clinical Practice Guidelines Fetal Health Surveillance, September 2011

26 Leduc, Dean, Biringer, Anne, Lee, Lily, Dy, Jessica, Society of Obstetricians and Gynecologists Clinical Practice Guideline Induction of Labour, No. 296, September 2013

Resources


