POLICY:	**Induction and Augmentation of Labour**
Program Area:	**Obstetrics**
Section:	**General**
Reference Number:	**CLI.5810.PL.002**
Approved by:	**Regional Lead Acute Care & Chief Nursing Officer**
Date:	Issued 2019/Oct/09 Revised 2024/Nov/01

PURPOSE:
To promote the effective and safe use of medications and procedures during induction and augmentation of labour.

BOARD POLICY REFERENCE:
Executive Limitations (EL-01) Global Executive Restraint & Risk Management
Executive Limitations (EL-02) Treatment of Clients

POLICY:
Induction is indicated when the risk to the mother and/or fetus of continuing the pregnancy exceeds the risk associated with inducing labor and birth.

When indicated, induction of labour is offered when the modified Bishop score is greater than or equal to 7 or in term pre-labour rupture of membranes (PROM), where modified Bishop score is not required. If the modified Bishop score is less than 7 and indication of induction is warranted cervical ripening is recommended, please review CLI.5810.PL.005 Cervical Ripening.

Physicians or midwives who do not have obstetrical induction/augmentation privileges must obtain a written consultation with a physician who has such privileges. Midwives may administer prostaglandins and establish oxytocin under the direction of a physician.

DEFINITIONS:
Active Labour – regular uterine contractions approximately every 2-5 in 10 minutes of sufficient strength to cause cervical dilatation and/or effacement. Traditionally diagnosed when the cervix is 3-4 cm dilatation in nulliparous patient or 4-5 cm dilatation in a multiparous patient.

Augmentation of labour – increasing the frequency or efficacy of naturally occurring contractions using medical intervention.

Bishop score – a method used to evaluate the likelihood of a successful induction of labour based on the patient's cervical characteristics. A score less than 7 indicates an unfavorable cervix and cervical ripening is recommended. A score of 7 or greater indicates a favorable cervix and induction with oxytocin is recommended.

Modified Bishop Scoring System			
Score	**0**	**1**	**2**
Dilatation (cm)	0	1-2	3-4
Cervical Length (cm) (previously effacement)	Greater than or equal to 4 (0-30%)	2-3 (31%-50%)	Less than 1-2 (51%-80%)
Consistency	Firm	Medium	Soft
Position	Posterior	Mid	Anterior
Station	-3	-2	-1/0

Burnett JE Jr. Pre-induction scoring: an objective approach to induction of labor. Obstet Gynecol 1966;28:479–83.

Cervical Ripening – use of a pharmacologic agent, or mechanical methods, to soften, efface and/or dilate the cervix in order to increase the likelihood of a vaginal delivery when labour is induced.

Continuous Monitoring – where care provider maintains continuous observation of the Electronic Fetal Monitoring (EFM) recording.

Elective Induction – the induction of labour in the absence of acceptable fetal or maternal indications.

Grand-multiparity – parity greater than or equal to five (5).

Induction of labour (IOL) – artificial initiation of labour before it's spontaneous onset (Robinson, d. et al, 2023).

Primary Care Provider (PCP) – regulated healthcare professional, who has the overall responsibility for directing and coordinating the care and management of a patient. The PCP will refer to obstetricians, family physicians and midwives.

Successful Induction of Labour – successful induction of labour is a vaginal delivery with optimal maternal and neonatal outcomes.

Synthetic Oxytocin (oxytocin) – a synthetic preparation of Oxytocin with properties similar in action to the posterior pituitary oxytocin. When administered intravenously, oxytocin stimulates uterine activity. Synthetic Oxytocin has a half-life of 1-6 minutes and a time to steady plasma concentration of 40 minutes (Drug Bank Online, 2023). Contractions will subside within 1 hour after IV administration if stopped.

Tachysystole – abnormal labour contraction patterns, which include any of the following criteria:

- More than 5 contractions in any 10-minute period averaged over 30 minutes;
- Contraction duration of more than 90 seconds;
- Coupling or tripling of contractions (two or three contractions in a row with little or no rest in-between), resulting in an overall duration of greater than 90 seconds;
- Resting period between contractions is less than 30 seconds;
- Absence of resting tone (or uterus remaining firm) between contractions assessed by palpation; or intrauterine pressure greater than 25 mmHg by IUPC between contractions (Dore, S. & Ehman, W., 2020).

Unfavorable cervix - a Modified Bishop Score of less than seven (7).

IMPORTANT POINTS TO CONSIDER:

- **Informed consent for Induction/Augmentation of labour requires a PCP discussion of associated risks including:**
  - Failure to establish labour,
  - Tachysystole with or without fetal heart rate changes,
  - Increased risk of prolong rupture of membranes and/or more frequent pelvic exams,
  - Increase risk of uterine rupture,
  - Assisted vaginal birth or caesarean delivery,
  - Postpartum hemorrhage, and/or
  - Adverse neonatal outcomes associated with iatrogenic preterm or early term birth.
- **Contraindications for Induction/Augmentation of Labour:**
  - Lack of patient consent (absolute),
  - Abnormal fetal lie or presentation (i.e. transverse lie or footling breech) (absolute),
  - Active genital herpes (absolute),
  - Invasive cervical carcinoma (absolute),
  - Less than 36 weeks gestational age (absolute),
  - Pelvic structural deformities (absolute),
  - Placenta previa, vasa previa, invasive placentation, or cord presentation (absolute),
  - Prior uterine rupture, classical or inverted-T uterine incision, significant uterine surgery informed by a prior operative report (absolute),
  - Abnormal fetal heart rate (absolute),
  - Grand-multiparity: parity greater than or equal to 5 (relative),
  - Hydramnios (relative),
  - Breech presentation (relative).
- **Prostaglandins are NEVER used simultaneously with Oxytocin:**
  A period of time must elapse after the administration of any prostaglandin agent when oxytocin induction or augmentation of labour is planned.
  - Cervidil® Vaginal insert: 30 minutes post removal must elapse.
  - Prostin® Vaginal gel: 6 hours must elapse.
  - Misoprostol Vaginal suppository: 4 hours must elapse
  - Misoprostol Oral Solution: 2 hours after last dose

PROCEDURE:

For all Pharmacological methods of Induction/Augmentation of labour:

1. Confirm surgeon, anesthesia, and operating room team is on call/available prior to starting induction. Sites need access to an available operating room and staff within 30 minutes for urgent caesarean delivery as required.
2. Midwives consult a physician prior to induction/augmentation.
3. An CLI.5810.PL.002.FORM.02 Induction Checklist form is completed prior to Induction/Augmentation of Labour.
4. Inductions are scheduled at least one day in advance and are initiated when an appropriate ratio of nursing staff is available. The Induction Checklist is used to prioritize induction waitlist.
5. A 30-minute EFM tracing is reviewed and discussed with the PCP prior to induction.
6. Patient's vital signs are recorded in the medical record.
7. The PCP completes an in-person assessment using CLI.5810.PL.005.SD.04 Algorithm for Cervical Ripening and Induction of Labour prior to ordering Induction/Augmentation of labour to assess intervention appropriateness, as well as review risk and benefits, of the proposed treatment plan to

ensure informed consent with the patient. This discussion, and an order for intervention, is documented in the patient's medical record by the PCP.

8. The PCP administering the ordered intervention enters the following information in the Integrated Progress Note (IPN):
    - Indication for induction/augmentation of labour,
    - Discussion that took place with the patient for risks and benefits of induction of labour,
    - Informed consent obtained from the patient by the PCP,
    - Description of the fetal heart rate (FHR) pattern, uterine activity and tone,
    - Description of the most recent cervical exam with modified Bishop score, and
    - Description of the fetal lie observed through Leopold's findings and/or point of care ultrasound findings.
9. Assess and document FHR as per CLI.5810.SG.002 Fetal Health Surveillance (FHS) – Intrapartum.

Nipple Stimulation

This intervention allows women greater control over the induction/augmentation process. It is not associated with adverse fetal reactions and may be attempted to decrease the need for a pharmacological cervical ripening or induction. **Nipple stimulation is a non-pharmacological method of Induction/Augmentation of Labour.**

1. Discuss with PCP prior to implementation.
2. Assess and document FHR as per the CLI.5810.SG.002 Fetal Health Surveillance (FHS) – Intrapartum.
3. Monitor maternal vitals as per CLI.5810.SG.003 Routine Care of the Labouring Patient Guideline.
4. Instruct client to use unilateral or bilateral nipple stimulation by hand or by breast pump. For hand stimulation, instruct the patient to gently roll or rub her nipples and areolas with her palm or fingers. This may be done through a thin layer of clothing.
5. Stimulation is alternated between breasts for improvement of Bishop's Score. For labor augmentation, bilateral nipple stimulation may be done.
6. There is no standardization regarding length of stimulation and length of rest. The suggested cycles are:
    - 15 minutes of stimulation alternating with 15 minutes of rest.
    - 10 minutes of stimulation alternating with 5 minutes of rest.
7. Assess and document FHR as per the Provincial Intrapartum Fetal Health Surveillance Guideline.
8. If uterine tachysystole occurs, stimulation is stopped/paused and reassessed prior to continuation.
9. Consider other interventions if active 1st stage of labour has not occurred with 2 hours of stimulation.
10. Document the method, duration of both stimulation and rest, the resulting changes noted in contractions and cervix.

Oxytocin Induction

1. The patient is given the CLI.5810.PL.002.SD.01/CLI.5810.PL.002.SD.01.F Oxytocin to Start or Advance Labour Patient Handout, and the PCP may use this as a guideline to discuss oxytocin use for induction with the patient.
2. The CLI.5810.PL.002.FORM.03 Pre and In-Use Oxytocin Safety Checklist is used before and during oxytocin induction or augmentation.
3. Oxytocin is administered intravenously (IV) by a Registered Nurse/Midwife with specific training to administer oxytocin for induction and/or augmentation of labour. A 1:1 patient to Nurse/Midwife ratio and continuous monitoring is required.
4. Oxytocin is a high alert medication. Oxytocin requires an independent double check at the following times:
    - When adding oxytocin to an IV infusion bag,
    - When setting the initial infusion rate with the infusion pump medication program calculator,
    - When changing the infusion bag and,
    - At shift change to confirm solution concentration and rate of administration.

5. Label the IV bag with medication sticker indicating the drug, dosage and nurse's/midwife's signature. Use a portless line for the oxytocin infusion. Always have the oxytocin line clearly labelled to avoid accidental boluses. Attach oxytocin solution to the primary IV line as close to the insertion site as possible to ensure that only a minimal amount of oxytocin remains in the IV tubing if the oxytocin must be discontinued.
6. Obtain at least a 30-minute EFM tracing prior to induction to establish baseline data. The EFM tracing is classified and interpreted according to the Provincial Intrapartum Fetal Health Surveillance Guideline.
7. Establish an #18 gauge intravenous, and infuse in primary line, normal saline at 50 mL/hr or as ordered by physician/midwife via infusion pump.
8. **The concentration of oxytocin is 30 units oxytocin in 500 mL normal saline resulting in milliunits/minute equaling mL/hour.** See Regional Parenteral Drug Monograph Manual and CLI.6010.PL.003 Regional Adult Parenteral Drug Monograph for Oxytocin for Labour Induction/Augmentation.
9. Start and titrate oxytocin using Very Low-Rate, Low-rate protocol or Expedited-rate protocol as determined and ordered by the PCP. The SOGC has suggested the following protocols:
    - **Very low-rate protocol** - start at 1 mU/minute, increase oxytocin at 30-minute intervals by 1 mU/minute until the minimum rate to achieve an adequate contraction pattern and progressive cervical dilatation.
      Note: **Patients of grand multiparity have their oxytocin initiated at 0.3 mU/minute and follow the Very Low-rate protocol. Once contractions occur every 3-4 minutes, do not increase dose.**
    - **Low-rate protocol** - start at 2 mU/minute, increase oxytocin at 30-minute intervals by 2 mU/minute until the minimum rate required to achieve an adequate contraction pattern **and** progressive cervical dilatation.
      Note: As contractions increase in frequency and strength, clinical judgement is used to decide if oxytocin increments should remain at 2 mU/minute or increase by 1 mU/minute.
    - **Expedited-rate protocol** - start at 4 mU/min, increase oxytocin at 30-minute intervals by 4 mU/minute until the minimum rate required to achieve an adequate contraction pattern **and** progressive cervical dilatation.
      Note: As contractions increase in frequency and strength, clinical judgement is used to decide if oxytocin increments should remain at 4 mU/minute or increase more gradually (i.e. 1-2 mU/minute).
      Contraindications for using the expedited-rate protocol includes:
        - Trial of labour after cesarean (TOLAC)
        - Parity greater than or equal to 5
        - Second stage of labour
        - Augmentation of labour

Maternal Monitoring

1. Provide continuous EFM during oxytocin titration or augmentation.
2. The fetal heart rate is assessed and recorded every 15 minutes as per the Provincial Intrapartum Fetal Health Surveillance Guideline.
3. Assess and record maternal BP and pulse prior to each dosage increase while oxytocin is being titrated. Assess and record maternal vital signs every 2 hours once a stable dosage of oxytocin is reached.
4. Assess and document uterine activity: including frequency (number of contractions in 10 minutes), duration, intensity, and resting tone prior to each dosage increase and every 15 minutes.
5. If an Intrauterine Pressure Catheter (IUPC) is in use, document every 15 minutes:
    - Peak intrauterine pressures (should be between 40-80 mmHg).
    - Baseline pressures (are 5-25 mmHg).

- **Note: Validate uterine resting tone by palpation between contractions; should feel soft.**

6. During oxytocin **IOL** when oxytocin is at a stable rate (unchanged dose has been achieved for one (1) hour) **AND** maternal and fetal status is normal, breaks in continuous electronic fetal monitoring for up to 30 minutes may occur.
   Note: Regardless of the monitoring method used, the fetal heart rate is assessed and recorded every 15 minutes. Intermittent auscultation may be used during this time. After 30 minutes off the monitor, the patient must go back on continuous monitoring for at least 30 minutes.
7. If tachysystole is present with a **normal** fetal heart rate pattern, discuss decreasing the oxytocin with the PCP.
8. If tachysystole is present with an atypical/abnormal fetal heart rate pattern, immediately stop oxytocin infusion and follow **CLI.5810.PL.002.SD.05 Intrauterine Resuscitation Techniques.**
9. If the oxytocin has been discontinued as part of the intrauterine resuscitation methods contact PCP for re-evaluation of oxytocin use.
10. If oxytocin has been discontinued for less than or equal to 30 minutes, consider starting the oxytocin at half the last dose. If oxytocin has been discontinued for greater than 30 minutes, start dose at 1 mu/minute.
11. If oxytocin has been discontinued and cervical ripening is needed, a cervical ripening agent may be administered 30 minutes following the discontinuation of oxytocin.

Observe for the following adverse events during oxytocin infusion

- Excessive uterine activity.
- Emergence of an atypical and/or abnormal fetal heart rate pattern.
- Water intoxication (oxytocin has anti-diuretic activity) is more commonly found in patients who have received above 20 milliunits/minute oxytocin for a prolonged period (more than 24 hours).
  - **Signs and symptoms include:** Headache, Nausea and vomiting, Mental confusion, decreased urinary output, decreased blood pressure, Increased heart rate, Arrhythmias and Grand mal seizure.

Titrated Oral Misoprostol Induction

1. Obtain at least a 30-minute EFM tracing prior to induction to establish baseline data. The EFM tracing is classified and interpreted according to the Provincial Intrapartum Fetal Health Surveillance Guideline.
2. The CLI.5810.PL.002.FORM.04 Misoprostol Safety Checklist is used prior to the administration of any misoprostol dose.
3. Assess and record maternal vital signs every 2 hours or more frequently if maternal condition dictates.
4. Monitor FHR by EFM for 30 minutes after each dose and the patient may ambulate until the next dose or until contractions start.
5. Once patient begins to contract, monitor FHR by EFM for 60 minutes after subsequent doses until active labour is achieved. If the FHR tracing is normal after 60 minutes, the patient may ambulate with FHR assessment per IA q 15 minutes until next dose. If active labour is achieved, notify PCP for reassessment for continuing/discontinuing misoprostol.
6. If tachysystole is present with a **normal** FHR pattern, hold further doses of misoprostol and notify PCP for further assessment.
7. If tachysystole is present with an abnormal fetal heart rate pattern, immediately notify PCP and follow **CLI.5810.PL.005.SD.05 Intrauterine Resuscitation Techniques.**

Procedure

1. Use the CLI.6010.SG.008.SD.04 Misoprostol Dissolve and Dose Instructions prior to the administration of each misoprostol dose.
2. The preparation of titrated oral Misoprostol solution requires a 2-person check.
3. Using the dosing protocol for induction of labour with misoprostol, initiate and titrate the dosage until active labour is achieved (2-5 contractions in every 10 minutes of sufficient strength to cause cervical

dilatation and/or effacement). The dose should not exceed 50 mcg. See **CLI.5810.PL.002.SD.02 Misoprostol Titration Protocol.**

- The PCP will order either **Protocol A**, or **Protocol B** for Oral Misoprostol induction.

4. If labour is not successfully achieved after 3 doses of Misoprostol 50 mcg **OR** in 24 hours, an alternate plan for IOL should be considered.

Vaginal Misoprostol for Induction of Perinatal Loss

1. To be administered by the physician, resident or registered midwife.
2. The CLI.5810.PL.002.FORM.04 Misoprostol Safety Checklist is used prior to the administration of any misoprostol dose. The criteria for fetal heart rate check is omitted.
3. Administer the designated dosage of Misoprostol (see schedule) into the posterior fornix with minimal lubricant as the medication is absorbed into the lubricant therefore decreasing its bioavailability.
4. For inpatient use only.
5. Vital signs every 4 hours including uterine activity. Once in active labour or rupture of membranes (ROM), monitor vital signs including uterine activity every hour until delivery.

Vaginal Misoprostol Schedule

Gestation (based on size of uterus)	15-25 +6 weeks	26-29 +6 weeks	30-35+6 weeks	36 weeks and greater
Doses Route is **vaginal**	400-800mcg Max 4 doses	100 - 200 mcg Max 4 doses	50-100mcg Max 4 doses	50 mcg Max 4 doses
Interval (until the fetus has passed)	Q4-6 h	Q4h	Q4h	Q4h

SUPPORTING DOCUMENTS

CLI.5810.PL.002.FORM.01	Induction Checklist
CLI.5810.PL.002.FORM.02	Labour Partograph
CLI.5810.PL.002.FORM.03	Pre and In-Use Oxytocin Safety Checklist
CLI.5810.PL.002.FORM.04	Misoprostol Safety Checklist
CLI.5810.PL.002.SD.01	Oxytocin to Start or Advance Labour: 5 Questions to Ask
CLI.5810.PL.002.SD.01.F	Oxytocin to Start or Advance Labour: 5 Questions to Ask – French
CLI.5810.PL.002.SD.02	Misoprostol Titration Protocol
CLI.5810.SG.002	Fetal Health Surveillance (FHS) - Intrapartum
CLI.5810.PL.005.SD.04	Algorithm for Cervical Ripening and Induction of Labour
CLI.5810.PL.005.SD.05	Intrauterine Resuscitation Techniques
CLI.6010.SG.008.SD.04	Misoprostol Dissolve and Dose Instructions
CLI.6010.PL.003	Regional Parenteral Drug Monograph Manual and Use of Infusion SMART Pumps

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CLI.5810.PL.005 Cervical Ripening

CLI.5810.SG.003 Routine Care of the Labouring Patient

Regional Adult Parenteral Drug Monograph