

## TITLE

**INDUCTION/AUGMENTATION OF LABOUR WITH OXYTOCIN****SCOPE**

Provincial: Women's and Infant Health

## DOCUMENT #

HCS-221-01

## APPROVAL AUTHORITY

Vice-President, System Innovations and Programs

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**NOTE:** The first appearance of terms in bold in the body of this document (except titles) are defined terms – please refer to the Definitions section.

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**OBJECTIVE**

- To establish the indications and administration process for the induction or **augmentation** of labour via oxytocin infusion.

**PRINCIPLES**

- All **patients** shall be offered information about the risks, benefits and alternatives associated with induction or augmentation of labour, via oxytocin infusion to ensure informed consent has been obtained as per the Alberta Health Services (AHS) *Consent to Treatment/Procedure(s)* Policy suite.
- Arrangements and support for pain relief options shall be discussed with the patient.
- A plan for non-progressive or unsuccessful **induction of labour** shall be discussed and options provided for the patient.
- Alternative options to induction of labour should be explored if the patient chooses not to have an induction of labour.

**APPLICABILITY**

Compliance with this document is required by all Alberta Health Services employees, members of the medical and midwifery staffs, Students, Volunteers, and other persons acting on behalf of Alberta Health Services (including contracted service providers as necessary).

**ELEMENTS****1. Points of Emphasis**

- 1.1 The **most responsible health practitioner (MRHP)** shall determine if induction of labour is indicated when the risk to the patient and/or fetus of continuing pregnancy exceeds the risk associated with induction of labour. Reasons for induction shall be compelling, convincing, and documented.
- 1.2 Augmentation of labour is indicated in the event of labour dystocia due to inadequate contractions, despite clinical strategies including but not limited to appropriate use of analgesia, hydration, rest and amniotomy.

**2. Indications for Induction via Oxytocin Infusion**

- 2.1 High priority indications include:
- a) Suspected fetal compromise;
  - b) severe pre-eclampsia, or eclampsia;
  - c) significant maternal disease that may put the patient or fetus at risk that is not responding to treatment;
  - d) significant but stable antepartum hemorrhage;
  - e) chorioamnionitis; and/or
  - f) term rupture of membranes with positive culture of maternal group B Streptococcus (GBS).
- 2.2 Other indications include:
- a) Estimated weeks of gestation greater than 41 weeks;
  - b) uncomplicated twin pregnancy estimated weeks of gestation greater than 38 weeks;
  - c) diabetes mellitus – level of glucose control with other maternal/fetal co-morbidities may determine urgency;
  - d) alloimmune disease at or near full-term;
  - e) intrauterine growth restriction;
  - f) oligohydramnios;
  - g) gestational hypertension estimated weeks of gestation greater than or equal to 38 weeks;
  - h) preeclampsia;

- i) intrauterine fetal death;
- j) pre-labour rupture of membranes at greater than or equal to 37 weeks with GBS negative culture;
- k) patient has history of rapid labour, distance to hospital; and/or
- l) intrauterine fetal death in prior pregnancy.

### 3. Contraindications to Induction of Labour via Oxytocin Infusion Include

- 3.1 Placenta previa, vasa previa or cord presentation;
- 3.2 abnormal fetal lie or non-vertex presentation (e.g., a transverse lie or footling breech);
- 3.3 prior classical Caesarean section or inverted 'T' uterine incision;
- 3.4 significant previous uterine surgery (i.e., full thickness myometrial incision);
- 3.5 active genital herpes simplex virus;
- 3.6 pelvic structural deformities;
- 3.7 invasive cervical carcinoma; and/or
- 3.8 previous uterine rupture.

### 4. Situations Where the Benefit of Induction via Oxytocin Infusion are Uncertain

- 4.1 Induction on the sole basis of suspected fetal macrosomia (large birth weight for gestational age) is not recommended.
- 4.2 Advanced maternal age:
  - a) Greater than 40 years of age, may be an indication for induction of labour at estimated weeks of gestation of 39 to 40 weeks if concurrent medical co-morbidities exist and the patient is nulliparous.
- 4.3 Maternal obesity:
  - a) Body Mass Index (BMI) greater than 40 (i.e., Obese class III), is not an indication for induction of labour unless concurrent medical co-morbidities exist or there are other indications that induction of labour is required.

## 5. Predictors of Successful Induction

- 5.1 Predictors of successful induction include: Bishop Score equal to or greater than six (6), and parity (prior vaginal delivery).
- 5.2 Factors that may contribute to failure of induction include:
- a) BMI greater than 40;
  - b) advanced maternal age (i.e., greater than 40 years);
  - c) estimated fetal weight greater than four (4) kg; and/or
  - d) Diabetes Mellitus.

## 6. General Risks Associated with Induction of Labour via Oxytocin Infusion

- 6.1 Failure to achieve labour. An associated plan shall be in place and documented prior to induction of labour;
- 6.2 risk of uterine rupture:
- a) Increased risk if patient has a history of scarred uterus;
- 6.3 chorioamnionitis;
- 6.4 cord prolapse with artificial rupture of membranes (ARM);
- 6.5 inadvertent delivery of preterm infant in the case of inadequate dating;
- 6.6 uterine **tachysystole** (i.e., greater than five [5] contractions in 10 minutes averaged over 30 minutes.); or
- 6.7 operative vaginal delivery.

## 7. Induction of Labour with Oxytocin Infusion

- 7.1 Oxytocin Infusion may be utilized when there is a favorable cervix and a Bishop score of six (6) or greater:
- a) If cervix is unfavorable/Bishop Score is less than six (6) see AHS *Induction of Labour: Cervical Ripening* Guideline.

## 8. Prior to Induction of Labour

- 8.1 The MRHP shall:
- a) Complete and document a thorough clinical evaluation of the patient and fetus which includes:

- (i) Review of maternal history including parity of previous vaginal or Caesarean section deliveries, BMI, maternal age, estimated fetal weight and history of diabetes;
  - (ii) confirmation of gestational age;
  - (iii) vaginal examination to assess cervix;
  - (iv) calculation of Bishop Score;
  - (v) confirmation of vertex presentation; and
  - (vi) baseline temperature, pulse, respirations, blood pressure and fetal heart rate measurements.
- b) Prior to initiation of oxytocin, consider artificial rupture of membranes (ARM), if rupture of membrane has not occurred.
- c) Ensure that appropriate laboratory tests have been completed and results are readily available for patients with:
- (i) Pre-eclampsia;
  - (ii) obstetrical complications; and/or
  - (iii) other medical conditions.
- d) Obtain an informed consent in accordance with the AHS *Consent to Treatment/Procedures* Policy suite:
- (i) Induction of labour, written consent is required.
  - (ii) Augmentation of labour, verbal consent is required.
- e) Arrange for an Obstetrical consultation when gestational age is less than 37 weeks or when expected date of confinement is in question (see *Care of Late Preterm Infants* Guideline).
- f) Confirm availability of Caesarean section resource, should it be required.
- g) An **order** from an **authorized prescriber** is required to initiate the oxytocin infusion protocol.
- h) The MRHP shall be readily available during induction/augmentation.
- i) Oxytocin infusion should not be administered:
- (i) Within six (6) hours of prostaglandin gel administration;
  - (ii) within 30 minutes of removal of dinoprostone (i.e., Cervidil Vaginal Insert); and

- (iii) within four (4) hours of a misoprostol administration (fetal demise).

8.2 The Registered Nurse (RN) or Registered Midwife (RM) shall:

- a) Review maternal history (e.g., gestational age, fetal presentation, Bishop score, current and past obstetrical history);
- b) Complete a maternal and fetal assessment including:
  - (i) Maternal vital signs (e.g. temperature, pulse, respirations and blood pressure);
  - (ii) fetal heart rate (FHR); and
  - (iii) uterine activity; and
- c) Obtain and classify an electronic fetal monitor tracing (minimum of 20 minutes) prior to initiation of oxytocin infusion.

## 9. Administration of Oxytocin

9.1 The RN or RM shall:

- a) Confirm the oxytocin orders;
- b) establish an intravenous (IV) of normal saline or ordered solution with #18 gauge IV catheter;
- c) prepare 20 units of oxytocin in 1000 millilitres (mL) of normal saline or ringer's lactate as ordered and obtain an independent double-check as per the AHS *Independent Double-Check* Guideline;
- d) Identify infusion line and tracing as per the AHS *Invasive Infusion Line and Tubing Verification* Policy;
- e) complete an independent double check when setting the initial infusion rate with the infusion pump medication program calculator, as per the AHS *Independent Double-Check* Guideline;
- f) administer oxytocin by a constant infusion pump through a secondary IV connected to the main IV line as close to the venipuncture site as possible using a needleless, luer connector, or portless line;
- g) start the oxytocin infusion at one (1) to two (2) milliunits per minute (low dose), (see Appendix A: *Oxytocin Conversion Chart* for details); and
- h) Oxytocin infusion may be increased by one (1) to two (2) milliunits every 30 minutes, until adequate uterine response is obtained to achieve active labour to a maximum rate of 20 milliunits per minute. Notify the MRHP if 20 milliunits/minute of oxytocin has been reached.

## 9.2 The MRHP shall:

- a) Prior to increasing beyond 20 milliunits per minute or initiating higher dosages:
  - (i) The MRHP, if not an Obstetrician, shall consider an Obstetrical consult;
  - (ii) provide a subsequent written order after dosage has been brought to 20 milliunits per minute;
  - (iii) ensure continuous monitoring of maternal and fetal status; and
  - (iv) remain present in the facility.
- b) For term healthy patients, consider discontinuation or pausing oxytocin administration when the patient is contracting regularly and cervix is greater than four (4) centimeters (cm) dilation.

**10. Monitoring of Maternal and Fetal Status**

## 10.1 The RN or RM shall:

- a) Assess maternal blood pressure and pulse with each increase in oxytocin infusion rate or more frequently if clinically indicated;
- b) assess maternal temperature every four (4) hours if membranes are intact and every two (2) hours if membrane are ruptured;
- c) assess uterine response to interventions;
- d) provide continuous electronic fetal monitoring (EFM) during procedure. If oxytocin rate remains stable and no intention of increasing further as well as fetal heart classification of normal, EFM may be interrupted for a maximum of 30 minutes at a time for the purpose of ambulation and position change;
- e) classify EFM strip every 15 to 30 minutes; and
- f) notify the MRHP of atypical or abnormal EFM fetal heart rate classifications. If abnormal EFM noted: Consider performing a pelvic exam to assess cervical dilatation and rule out prolapsed cord.

## 10.2 The RN or RM shall notify the MRHP or consultant if there are any abnormal contraction patterns including but not limited to:

- a) More than five (5) contractions in a 10 minute window averaged over a 30 minute period (tachysystole);
- b) resting period between contractions of less than 30 seconds or the uterus does not relax between contractions; and/or

- c) prolonged contractions lasting more than 90 seconds.

## 11. Management of Tachysystole

11.1 Tachysystole shall be confirmed by an interpreted EFM tracing and abdominal palpation.

11.2 Management of tachysystole with an abnormal EFM tracing includes:

- a) Stop the source of stimulation including:
  - (i) Stop oxytocin infusion (Half-life of oxytocin is approximately five [5] minutes);
- b) implement intrauterine resuscitative measures including:
  - (ii) Maternal position changes;
  - (iii) improve maternal hydration with an intravenous fluid bolus if indicated; and
- c) notify the MRHP.

11.3 The decision to restart the oxytocin infusion and the prescribed rate of infusion shall be ordered by the authorized prescriber.

11.4 Prepare for expedited delivery should tachysystole not resolve.

## 12. Documentation

12.1 Initiate a partogram once an oxytocin infusion is started. Multidisciplinary or local progress notes shall be used to document information not recorded on the partogram.

12.2 Documentation in the patient's **health record** shall include but is not limited to:

- a) Informed consent;
- b) maternal observations and assessments including blood pressure, pulse, respirations and temperature;
- c) fetal heart rate, characteristics and classifications of EFM shall be done in accordance with Canadian *Fundamentals of Fetal Health Surveillance*;
- d) initiation of oxytocin infusion, rate changes, uterine activity (e.g., frequency, duration, contraction strength and resting tone);
- e) maternal and fetal responses to incremental increases in oxytocin or any other intervention;
- f) pain relief management; and



- g) patient teaching.

## DEFINITIONS

**Augmentation** implies that the labour contractions are not adequate to ensure cervical dilation and/or fetal descent therefore, enhancement of contractions is necessary.

**Authorized prescriber** means a health care professional who is permitted by Federal and Provincial legislation, their regulatory college, Alberta Health Services, and practice setting (where applicable) to prescribe medications.

**Health record** means the Alberta Health Services legal record of the patient's diagnostic, treatment and care information.

**Induction of Labour** means the process of artificially stimulating the uterus to start labour. Membranes may be intact or ruptured. The goal of induction is to achieve vaginal delivery.

**Most responsible health practitioner (MRHP)** means the health practitioner who has responsibility and accountability for the specific treatment/procedure(s) provided to a patient and who is authorized by Alberta Health Services to perform the duties required to fulfill the delivery of such a treatment/procedure(s) within the scope of their practice.

**Order** means a direction given by a regulated health care professional to carry out specific activity(-ies) as part of the diagnostic and/or therapeutic care and treatment to the benefit of a patient. An Order may be written (including handwritten and or electronic), verbal, by telephone or facsimile.

**Patient** means an adult or child who receives or has requested health care or services from Alberta Health Services and its health care providers or individuals authorized to act on behalf of Alberta Health Services. This term is inclusive of residents, clients and outpatients.

**Tachysystole** means more than five (5) contractions in a 10 minute window, averaged over a 30 minute period.

**REFERENCES**

- Appendix A: *Oxytocin Conversion Chart*
- Appendix B: *Induction Algorithm*
- Alberta Health Services Governance Documents:
  - *Care of Late Preterm Infants* Guideline (#HCS-200-01)
  - *Consent to Treatment/Procedure(s)* Policy and procedures (#PRR-01)
  - *Independent Double-Check* Guideline (#PS-60-01)
  - *Invasive Infusion Line and Tubing Verification* Policy (#PS-15)
  - *Induction of Labour – Cervical Ripening* Guideline (#HCS-222-01)
- Alberta Health Services Resources
  - *Induction of Labour, Adult* Provincial Clinical Knowledge Topic (Clinical Knowledge & Content Management)
  - *Fetal Health Surveillance* Course (Alberta Perinatal Health Program)
- Non-Alberta Health Services Documents:
  - *MORE<sup>OB</sup>* (Society of Obstetricians and Gynecologists of Canada [SOGC])

**VERSION HISTORY**

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## APPENDIX A

## Oxytocin Conversion Chart

## Utilize Smart Pump Technology to Optimize Patient Safety

**Preparation:**

Mix 20 units of oxytocin in 1000 milliliters (mL) of normal saline or ordered solution to result in 20 milliunits (mU) per mL.

**Starting dose:**

Start at one (1) to two (2) milliunits per minute and increase at one (1) to two (2) milliunits per minute every 30 minutes.

Oxytocin dose milliunits/minute	Rate of Infusion mL/Hour
1	3
2	6
3	9
4	12
5	15
6	18
7	21
8	24
9	27
10	30
11	33
12	36
13	39
14	42
15	45
16	48
17	51
18	54
19	57
20	60

## Note:

- Obstetrical consult recommended prior to administering greater than 20 milliunits per minute; proceed with caution.
- During augmentation adequate contractions may be achieved at a lower dose of Oxytocin.

## APPENDIX B

**Induction Algorithm**

