Subject: Oxytocin for Induction of Labor, Augmentation of Labor, and Cervical Ripening	
REVISION DATE: 03/1997, 01/2013, 12/2014, 03/2015, 06/2015 REPLACES: L&D Pitocin Induction/Augmentation of Labor	WRITTEN: June 1980 SUPERSEDES DATE: March 2015

This guideline is used to assist staff when administering oxytocin for labor induction, augmentation, or cervical ripening. This applies to all medical and nursing personnel.

Purpose: To assist the Physician (OB/GYN) and Certified Nurse Midwife (CNM), hereafter referred to as "OB provider," and Registered Nurse (RN) in providing optimum patient care and to guide the induction/augmentation/cervical ripening process using established current standards of care to ensure both a safe and satisfying birth experience to our expectant families. While current standards of care are the basis of this guideline, it is understood that every possible scenario cannot be addressed and cannot replace the informed judgment of trained physicians, CNMs, and nurses.

In 2007, oxytocin was added to the Institute for Safe Medication Practices (ISMP, 2007) list of high-alert medications.

High-alert medications are defined as those bearing a heightened risk of harm when used in error and that may require special safeguards to reduce the risk of error.

1. Definitions

1.1. **Cervical ripening**: Process of effecting physical softening and distensibility of the cervix in preparation for labor and birth.

1.2. **Labor induction**: Stimulation of uterine contractions before the spontaneous onset of labor for the purpose of accomplishing vaginal birth.

1.3. **Labor augmentation**: Stimulation of uterine contractions after the onset of labor for the purpose of accomplishing vaginal birth.

1.4. **Adequate labor: either**

Contractions every 2-3 minutes, lasting approximately 90 seconds, per external tocometry, that are of moderate or strong intensity per palpation.

Or

With an IUPC in place, contraction strength demonstrates a minimum of 200-220 Montevideo Units (MVUs) per 10 minute interval and does not exceed 300 MVUs with resting tone $\leq$ 25 mmHg and $\geq$ 50 mmHg contraction intensity.

1.5. **Uterine tachysystole**: **more than five contractions in 10 minutes, averaged over a 30 minute window.** Contraction frequency alone is a partial assessment of uterine activity. Other factors such as duration, intensity, resting tone, and relaxation time between contractions are equally important. (ACOG Practice Bulletin 107 Induction of labor). Other definitions of abnormal contraction patterns can include: A series of single contractions lasting 2 minutes (120 seconds) or more, contractions of normal duration (60 seconds) occurring within one minute of each other, insufficient return of uterine resting tone between contractions via palpation, or IUPC resting pressure > 25 mmHg, or Montevideo units > 300 mmHg.

1.6. **Bishop Score:** Evaluation of the cervical characteristics and fetal station to assist with predicting the success of labor induction. A total Bishop Score of more than 8 indicates the probability of vaginal delivery after labor induction is similar to that of spontaneous labor.

Summary of Changes: References/content updated to reflect most current standards of practice.

2. **References:**

2.1. Mattson, S., and Smith, J. (2011). *Core Curriculum for Maternal-Newborn Nursing* (4th ed.). Saint Louis, MO: Saunders Elsevier.

2.2. AWHONN *Fetal Heart Monitoring, Principles and Practices* (4th ed.). (2009). Kendall Hunt Publishing Company.

2.3. The American College of Obstetricians and Gynecologists (ACOG) (2009). Induction of labor. *ACOG Practice Bulletin No. 107, Clinical Management Guidelines for Obstetrician-Gynecologists.*

2.4. The American College of Obstetricians and Gynecologists (ACOG) (2003). Induction of labor. *ACOG Educational Bulletin No. 49.*

2.5. Caldeyro-Barcia, R, Sica-Blanco, Y, Poseiro, JJ, et al. (1957) a quantitative study of the action of synthetic oxytocin on the pregnant human uterus. J Pharmacol Exp Ther.Sep; 121 (1): 18-31.

2.6. University of Michigan Women's Hospital: Care of the Patient Receiving Oxytocin for Labor Induction or Augmentation November 2010.

2.7. NNEPQUIN: Guideline for the Use of Oxytocin December 2012.

2.8. Clark S, Belfort M, et al., Implementation of a conservative checklist-based protocol for oxytocin administration: maternaland newborn outcomes. Am J Obstet Gynecol 2007; 197:480.

2.9. Simpson, KR, Cervical ripening and induction and augmentation of labor, 3rd edition. Washington, DC: AWHONN 2008.

2.10. Simpson, KR and Creehan, PA. AWHONN Perinatal Nursing, 4th edition, Philadelphia, PA: Wolters Kluwer| Lippincott Williams & Wilkins. 2014.

2.11. Zhang J, Landy HJ, et al., Contemporary Patterns of Spontaneous Labor with Normal Neonatal Outcomes. Obstetrics and Gynecology 2010; 116; 1281-1287.

2.12. ACOG Obstetric Care Consensus Series Number 1: Safe Prevention of the Primary Cesarean Deliver. March 2014.

2.13. Stewart RD, Bleich AT, et al., Defining uterine tachysystole: how much is too much?. Am J Obstet Gynecol 2012;290.e1-e6.

2.14. Macones GA, Hankins GD, et al.The 2008 National Institue of Child Health and Human Development workshop report on electronic fetal monitoring: update on definitions, interpretation, and research guidelines. Obstet Gynecol 2008; 112: 661-6.

3. **Responsibilities:**

3.1. Privileged delivering OB provider (OB/GYN, CNM):

3.1.1. Manage and assume responsibility for patient care administered.

3.1.2. Assess patient for appropriateness of labor induction, augmentation, or cervical ripening.

3.1.3. Complete the Pre-Oxytocin Checklist (either on paper or electronically) before oxytocin infusion is started. (see attachment #1 Pre-Oxytocin Checklist).

3.1.4. Responsible for counseling patient for all procedures and obtaining informed consent to include induction, augmentation, and cervical ripening.

3.1.5. Place appropriate medical orders in the patient's electronic health record (EHR) based on comprehensive patient assessment.

3.1.6. An OB provider with privileges to perform cesarean delivery will be readily available with ongoing communication throughout the patient's labor and delivery.

3.2. Registered Nurse:

3.2.1. Acknowledge and carry out all OB provider orders in the EHR.

3.2.2. Establish baseline maternal and fetal well-being and cervical status before any cervical ripening or labor induction agent is used.

3.2.3. Ongoing maternal and fetal assessment to include monitoring of fetal heart rate (FHR) and uterine activity throughout labor and delivery to support safe care.

3.2.4. Notify OB provider of abnormal or inadequate contraction patterns, or of category II/Category III FHR patterns noted on the electronic fetal monitor. Abnormal is defined in the tachysystole algorithm (see attachment #3 Oxytocin-Induced Tachysystole Management Algorithm).

3.2.5. Complete the Oxytocin "In-Use" Checklist prior to any increase in oxytocin rate and every thirty minutes while administering oxytocin. (see attachment #2 "In-Use" Oxytocin Checklist)

3.2.6. Titrate oxytocin to the lowest dose compatible with sustained, adequate uterine activity.

4. **General:**

4.1. Responsibility for the decision to initiate oxytocin rests with the OB provider. An order for oxytocin will be placed by the OB provider in the EHR prior to initiation of oxytocin by the RN.

4.2. All inductions will have gestational age and indications for induction documented by the OB provider. The OB provider will also document fetal presentation and station, cervical status/Bishop score, (see chart below) and estimated fetal weight (EFW).

Bishop Scoring System				
	Points			
Parameter/Score	0	1	2	3
Dilation	Closed	1-2	3-4	5 or more
Effacement	0-30%	40-50%	60-70%	80% or more
Station	-3	-2	-1,0	+1,+2
Consistency	Firm	Medium	Soft	
Position of Cervix	Posterior	Mid-position	Anterior	

4.3. The OB provider will discuss and document indications, benefits, and potential risks of induction of labor, labor augmentation, or cervical ripening with the patient.

4.4. The Charge Nurse or RN caring for the patient may decline to initiate and/or maintain oxytocin infusion if, in their best judgment:

4.4.1. The patient does not meet criteria for oxytocin administration as listed in section 5 (Indication for Use) or section 6 (Contraindications to Labor Induction). The listed

indications and contraindications for oxytocin use are examples and there are other valid medical indications for induction of labor that are not listed.

4.4.2. Patient acuity or other circumstances on the unit prevents adequate monitoring of the maternal-fetal status.

4.4.3. These decisions will be discussed with the OB provider and a plan formulated.

4.5. During administration of oxytocin, the patient will be monitored and assessed for signs of uterine tachysystole and abnormal contraction patterns indicating excessive uterine activity, and for category II and III FHR patterns. (see attachment #3 Oxytocin-Induced Tachysystole Management and attachment #4 Fetal Heart Monitoring Algorithm)

4.6. FHR and uterine contractions are monitored continuously during oxytocin induction and augmentation (see also ANMC Guideline, “Electronic Fetal Monitoring”).

4.7. The patient may be out of bed in various positions as long as monitoring is maintained. The patient may be off fetal monitoring briefly for bathroom visits if FHR and uterine activity are stable.

5. **Indications for Use:**

5.1. Induction of labor or cervical ripening is indicated when the benefits of delivery to either the mother or fetus outweigh the risks of delivery. Indications may include but are not limited to:

- Premature rupture of membranes
- Preeclampsia/Eclampsia
- Chorioamnionitis
- Suspected fetal jeopardy (e.g., fetal growth restriction, isoimmunization)
- Maternal medical problems (e.g., diabetes mellitus, renal disease, hypertension, intrahepatic cholestasis of pregnancy)
- Fetal demise
- Post-term pregnancy
- Abnormal antepartum testing results
- Oligohydramnios

- Multiple gestation

5.2. Indications for augmentation of labor may include, but are not limited to:

- Prolonged (slower progress than normal) or arrested first stage of labor (complete cessation of progress). The Consortium on Safe Labor data does not spell out an optimal duration to diagnose a prolonged labor or arrest of labor. The data does, however, indicate that labor appears to progress more slowly than data from 50 years ago suggests.
- Inadequate uterine contractions.

5.3. If induction of labor is elective, a gestational age of 39 completed weeks or greater must be documented by the OB provider, as well as the method used to determine gestational age which includes one or more of the following:

- Ultrasound measurement at less than 20 weeks of gestation that supports gestational age of 39 weeks or greater
- Fetal heart tones have been documented as present for 30 weeks by Doppler ultrasonography
- It has been 36 weeks since a positive serum or urine human chorionic gonadotropin pregnancy test result

6. **Contraindications to Labor Induction:**

6.1. Contraindications to induction of labor or cervical ripening include, but are not limited to:

- Vasa previa or complete placenta previa
- Transverse fetal lie
- Prior classical uterine incision
- Previous myomectomy entering the endometrial cavity
- Active genital herpes infection
- Invasive cervical cancer

7. **Standards of Practice/Guidelines for Care:**

7.1. RN will verify that the OB provider has discussed the indications as well as potential risks and benefits of induction or augmentation of labor with the patient. The OB provider is to be contacted if the patient has any questions regarding the procedure.

7.2. OB provider will document within EHR regarding informed consent of risks, benefits, and/or alternatives discussed with patient.

7.3. RN will review the patient's prenatal records and medical history as well as the OB provider's orders. RN will complete the patient's admission history in Cerner within 24 hours of admission (documentation of physical assessment to occur within 2 hours of admission).

7.4. A vaginal exam should be performed by the OB provider or the RN to determine presentation and Bishop Score. If cervical assessment has been performed by the RN, the OB provider will be notified of a Bishop score $\leq$ 8 in a primiparous woman and $\leq$ 5 in a multiparous woman.

7.5. RN will verify that the OB provider has completed the Pre-Oxytocin Checklist and placed oxytocin orders in the EHR.

7.6. After positioning the patient for comfort and optimal uteroplacental blood flow, RN will apply the electronic fetal monitor and record the FHR and any uterine activity for at least 30 minutes prior to initiation of oxytocin infusion. Notify the OB provider of any Category II or III fetal heart tracing (refer also to the guideline, Electronic Fetal Monitoring) or if there is adequate or excessive uterine activity.

7.7. **Assess and document baseline vital signs: blood pressure (BP), temperature, pulse (P), respirations (R), and pain level. Assess and document baseline FHR and uterine activity. Also assess and document at the following intervals:**

7.7.1. First and Second Stage: Pulse (P), respirations (R), blood pressure (BP), and pain level every hour.

7.7.2. Third Stage: Pulse (P), respirations (R), blood pressure (BP), and pain level every 5-15 minutes.

7.7.3. Temperature: Assess and document temperature every 4 hours. After artificial rupture of membranes (AROM) or spontaneous rupture of membranes (SROM), assess and document temperature every 2 hours. If febrile, temperature $\geq$ 100.4, assess every hour.

7.7.4. Continue to document respirations hourly throughout recovery.

7.7.5. Refer to the Electronic Fetal Monitoring guideline for frequency of assessment and documentation of fetal heart rate and uterine activity.

7.7.6. Maternal condition may dictate more frequent vital signs and assessment.

7.8. Start a large bore peripheral IV (minimum 18 gauge preferred). Initiate mainline lactated ringers (LR) as ordered.

7.9. Oxytocin MUST be set up to infuse via its own IV pump chamber with the use of a Buretrol or Volutrol and programmed using IV Guardrails to ensure the safest possible drug administration. Connect the oxytocin line into the port of the mainline tubing that is **closest** to the IV insertion site. Label oxytocin IV tubing with the appropriate stickers. (No other medications will be administered via the oxytocin tubing)

7.10. Begin the oxytocin as indicated in the OB provider order. Oxytocin will be in a premixed solution of oxytocin 30 units in 500 mL of normal saline = 60 milliunits/mL. A rate of 1 milliliter per hour delivers 1 milliunit/min.

7.10.1. Begin oxytocin at 2 milliunits/min (2 mL/hour)

7.10.2. Oxytocin may then be increased by 2 milliunits/min (2 mL/hour) by the RN every 30 minutes until adequate progress of labor is established.

7.10.2.1. The OB provider may determine an alternate infusion dosing schedule if preferred. This alternate infusion schedule must be ordered in the EHR and should include the infusion start dose in milliunits/min, dosage increase increments in milliunits/min, frequency of rate increase and maximum dose in milliunits/min.

7.10.2.2. OB provider documentation of rationale for selecting a higher dosing regimen must be annotated within EHR.

7.10.3. Titrate oxytocin infusion as ordered until contractions are every 2-3 minutes, lasting approximately 90 seconds, per external tocometry, that are of moderate or strong intensity per palpation or with an IUPC $\geq$ 50 mmHg contraction intensity with resting tone $\leq$ 25 mmHg. MVUs > 300 are considered excessive. Oxytocin should be continuously titrated to the lowest dose compatible with a physiologic rate of labor progress.

7.10.4. Oxytocin may be titrated to 20 milliunits/min (20mL/hour) at which time the RN is to notify the OB provider. The OB provider then has the option to write an order to

titrate beyond 20 milliunits/min. The absolute maximum dose shall not exceed 40 milliunits/min.

7.10.5. If the OB provider chooses to increase oxytocin infusion above 20 milliunits/min, then an order should be written in the EHR and a bedside assessment with documentation in the EHR should be completed.

7.11. Once adequate labor is established, RN may maintain or decrease oxytocin infusion rate to that needed for continued labor progress.

7.12. Consider decreasing or discontinuing oxytocin infusion:

- During the second stage of labor to approximate physiologic second stage contraction pattern.
- After rupture of membranes.
- In the active phase of labor.

8. **Interventions:**

8.1. Uterine contraction abnormalities include tachysystole (> 5 contractions in 10 minutes, averaged over a 30-minute window). Other abnormal uterine contraction patterns that are of concern include a series of single contractions lasting 2 minutes (120 seconds) or more, contractions of normal duration (60 seconds) occurring within one minute of each other, insufficient return of uterine resting tone between contractions via palpation or IUPC pressure > 25 mmHg, or MVUs > 300. If there is a series of single contractions lasting 2 minutes (120 seconds) that occur remote from delivery before the active phase of labor, and there is no maternal discomfort, these do not require intervention and oxytocin can be increased to achieve an adequate labor pattern.

8.2. **FHR patterns containing oxytocin induced tachysystole or other abnormal contraction patterns that are of concern** (see attachment #3 Oxytocin-Induced Tachysystole Management Algorithm):

8.2.1. **Category I (green on algorithm):**

8.2.1.1. Increase EFM surveillance and consider interventions below:

8.2.1.1.1. Interventions:

8.2.1.1.1.1. Reposition patient

8.2.1.1.1.2. IV fluid bolus

8.2.2. **Category I (orange on algorithm)**

8.2.2.1. If uterine activity (UA) has not returned to normal after 10 minutes and the FHR remains normal, decrease oxytocin by half the current rate and observe for another 10 minutes.

8.2.2.2. If tachysystole does not resolve after another 10 minutes and the FHR remains normal, contact provider and discontinue oxytocin infusion until UA is less than 5 uterine contractions in 10 minutes.

8.2.3. **Category II or III (red on algorithm):**

8.2.3.1. Turn off oxytocin immediately, proceed with interventions below, and consult OB provider.

8.2.3.1.1. Interventions:

8.2.3.1.1.1. Reposition patient

8.2.3.1.1.2. IV fluid bolus

8.2.3.1.1.3. Consider oxygen at 10-12L/min via non-rebreather face mask

8.2.3.1.1.4. If no response, consider obtaining an order for terbutaline 0.25 mL subcutaneously

8.3. **FHR Patterns without Tachysystole or other abnormal uterine contraction patterns that are of concern** (see attachment #4 Fetal Heart Monitoring Algorithm):

8.3.1. **Category I (dark green on algorithm):** Continue care, re-evaluate per guideline, and reassure patient.

8.3.2. **Category II (light green on algorithm):** FHR pattern without accelerations and minimal variability may occur after opiate administration for pain control and should resolve within the expected period of therapeutic effect. Such FHR patterns may also occur during magnesium administration. Minimal (but not absent) variability may also be seen in premature gestations and during fetal sleep cycles.

8.3.2.1. Oxytocin management and continuation in these cases should be reviewed with the OB provider.

8.3.3. **Category II FHR pattern (yellow on algorithm) with any of the following**: minimal variability not accompanied by decelerations, marked variability not accompanied by decelerations, tachycardia, recurrent late or variable decelerations, or variable decelerations accompanied by moderate baseline variability.

8.3.3.1. Proceed with possible interventions below and consult OB provider.

8.3.3.1.1. Possible interventions:

8.3.3.1.1.1. Reduce oxytocin in increments of 2 milliunits/min and if tachysystole is present refer to tachysystole algorithm

8.3.3.1.1.2. Reposition patient

8.3.3.1.1.3. IV fluid bolus

8.3.3.1.1.4. Consider oxygen at 10-12 L/min via non-rebreather face mask

8.3.3.1.1.5. Explain assessment and interventions; make plan of care with patient

8.3.4. **Category II FHR pattern (orange on algorithm) with any of the following:** bradycardia not accompanied by absent variability, absent baseline variability not accompanied by recurrent decelerations, absence of induced accelerations after fetal stimulation, recurrent late or variable decelerations accompanied by minimal baseline variability, prolonged deceleration (greater than 2 minutes, but less than 10 minutes):

8.3.4.1. Turn off oxytocin immediately, consult OB provider and proceed with interventions below.

8.3.4.1.1. Interventions:

8.3.4.1.1.1. Reposition patient

8.3.4.1.1.2. IV fluid bolus

8.3.4.1.1.3. Administer oxygen at 10-12 L/min via non-rebreather face mask

8.3.4.1.1.4. Explain assessment and interventions; make plan of care with patient

8.3.5. **Category III FHR pattern (red on algorithm):**

- Absent FHR baseline variability and any of the following:
  - Recurrent late decelerations
  - Recurrent variable decelerations
  - Bradycardia

– OR –

- Sinusoidal Pattern

8.3.5.1. Turn off oxytocin immediately and consult OB provider, cesarean delivery provider, scrub tech, anesthesia and initiate all of the following interventions below.

8.3.5.1.1. Interventions:

8.3.5.1.1.1. Reposition patient and call for help

8.3.5.1.1.2. IV fluid bolus

8.3.5.1.1.3. Administer oxygen at 10-12 L/min via non-rebreather face mask

8.3.5.1.1.4. Explain assessment and interventions; make plan of care with patient

8.3.5.1.1.5. Update NICU staff

8.3.5.1.1.6. Prepare operating room

8.3.5.1.1.7. Provide support for the family

8.4. **Restarting oxytocin:**

8.4.1. Once the FHR and/or uterine activity has returned to previous status, and if the oxytocin has been off for < 30 minutes, it may be restarted at ½ the rate that resulted in tachysystole and increased per protocol.

8.4.2. If the oxytocin has been off for $\geq$ 30 minutes, it must be restarted at the initial dose used at the beginning of induction and increased per protocol.

9. **Notify OB provider if:**

9.1. Inadequate FHR recording or inadequate uterine contraction recording by external monitor.

9.1.1. If unable to record an interpretable FHR tracing and/or uterine activity tracing, women receiving oxytocin may have a fetal scalp electrode (FSE) and/or IUPC placed if not contraindicated. (Refer to the guideline, Placing Fetal Scalp Electrodes Guideline.)

9.1.2. If unable to adequately assess FHR and/or uterine activity tracing, oxytocin should be turned off until an interpretable FHR and uterine activity pattern can be recorded.

9.1.3. Unable to establish adequate uterine contractions **OR** if oxytocin dose reaches 20 milliunits/min. (Note: Absolute maximum oxytocin dose shall not exceed 40 milliunits/min).

9.2. Uterine tachysystole is unresolved after corrective actions have been implemented.

9.3. Category II or III FHR pattern (as defined by attachment #4 Fetal Heart Rate Monitoring Algorithm).

9.4. Signs and symptoms of hyponatremia and water intoxication.

9.4.1. In most cases of water intoxication, high doses of oxytocin (40 milliunits/min) were administered in large volumes of hypotonic solutions (D5W).

9.4.2. Symptoms include headache, nausea, vomiting, lethargy, unconsciousness, and seizures. Diagnosis can be made by serum electrolytes.

10. **Documentation:**

10.1. Pre-Oxytocin Checklist will be completed prior to initiation of oxytocin for induction or augmentation.

10.2. Oxytocin In-Use Checklist will be completed prior to any oxytocin increase and every 30 minutes while administering oxytocin.

10.3. Assessment and documentation of maternal vital signs – Refer to section 7.7.

10.4. Assessment and documentation of the FHR and uterine activity will occur according to the Association of Women's Health, Obstetrics, and Neonatal Nurses (AWHONN) recommendations for high risk patients. (Refer to the guideline, Electronic Fetal Monitoring).

****There will be some situations in which alterations in management from that described in the guideline are clinically appropriate. If, after reviewing the FHR strip and course of labor, the responsible OB provider feels that in his or her judgment, continued use of oxytocin is in the best interest of the mother and baby, the OB provider should write or dictate a note to that effect and order the oxytocin to continue. The RN will continue to provide safe, high-quality nursing care** (*ACOG Educational Bulletin Number 49, December 2003, Induction of Labor).*

Attachments:
Pre-Oxytocin Checklist (Attachment 1)
Oxytocin In-Use Checklist (Attachment 2)
Oxytocin-Induced Tachysystole Management Algorithm (Attachment 3)
FHR Monitoring Algorithm (Attachment 4)

Attachment 1

Pre-Oxytocin Checklist

Date/ time:
EDC:
EGA:
Induction or Augmentation? (Circle one) If induction, indication for induction:_____
EFW:
Cervical assessment at the start of oxytocin:
Bishop score:

Factor	0	1	2	3
Cervical Dilation	0	1, 2	3, 4	≥5
Cervical Effacement (%)	0, 10, 20, 30	40, 50	60, 70	80, 90, 100
Fetal Station	-3	-2	-1, 0	
Cervical Consistency	Firm	Moderate	Soft	
Cervical Position	Posterior	Midposition	Anterior	

Please circle appropriate cervical status above.

Fetal presentation (circle one): vertex. Other (describe)_____
Fetal status at time of oxytocin initiation: Category I Category II

Form completed by:_____RN initiating Oxytocin:_____

Patient Sticker:

Attachment 2

"In-Use" Oxytocin Checklist

	"In –Use" Oxytocin Checklist will be completed every 30 minutes.								
Oxytocin should be stopped or decreased in increments of 2 mu/min if the following checklist cannot be completed for Fetal Heart Rate. Refer to Fetal Heart Monitoring Algorithm.	Date:								
	Time:								
	FETAL HEART RATE ASSESSMENT:								
	1. At least 1 accel 15x15 in previous 30 minutes OR moderate variability for 10 of the previous 30 minutes.								
	2. No more than 1 late decel occurred in the previous 30 minutes.								
	3. No more than 2 variable decels exceeding 60x60 from the baseline within the previous 30 minutes								
	UTERINE CONTRACTIONS:								
Refer to Oxytocin- Induced Tachysystole Algorithm for tachysystole or abnormal contraction patterns.	4. No more than 5 uterine contractions in 10 minutes averaged over previous 30 minutes.								
	5. No two contractions greater than 120 seconds duration.								
	6. Uterus palpates soft between contractions.								
	7. If IUPC is in place, MVU must calculate less than 300 mm Hg and the baseline resting tone must be ≤25 mmHg.								
	"In-Use" Oxytocin checklist reviewed.								
	****If oxytocin is stopped, the pre-oxytocin checklist will be reviewed before re-initiation.**								
	Nurse Initials:								
	Nurse Comments:								

Patient Sticker

Attachment 3

ALASKA NATIVE MEDICAL CENTER

Oxytocin-Induced Tachysystole Management Algorithm (7.1.15)

Administer Oxytocin drip as ordered by provider to achieve cervical dilation and adequate contraction pattern while maintaining a normal FHR pattern

Contraction patterns requiring nursing action (when averaged over a 30 minute window)*:

Tachysystole is defined by NICHD as:

- More than 5 contractions in 10 minutes over a 30 minute window

Other abnormal uterine contraction patterns that are of concern:

- A series of single contractions lasting 2 minutes (120 seconds) or more**
- Contractions of normal duration (60 seconds) occurring within one minute of each other
- Insufficient return of uterine resting tone between contractions via palpation or IUPC pressure above 25 mmHg
- MVU >300

*Excessive oxytocin and oxytocin receptor site desensitization should guide clinicians to reduce the rate or discontinue oxytocin until uterine activity returns to normal.

** If there is a series of single contractions lasting 2 minutes (120 seconds) that occur remote from delivery before the active phase of labor, and there is no maternal discomfort, these do not require intervention and oxytocin can be increased to achieve adequate labor pattern.

With FHR Category I (Normal)

Increase EFM surveillance and consider interventions:

- Reposition patient
- IV fluid (bolus)

Contractions decrease 10 minutes after interventions and FHR remains normal; continue Oxytocin administration to maintain an effective contraction pattern.

Contractions <u>do not</u> decrease 10 minutes after interventions, & the FHR remains normal; **decrease Oxytocin by ½ the current rate** and observe for another 10 minutes. If tachysystole does not resolve, contact provider **<u>and</u>** discontinue oxytocin infusion until UA is less than 5 uterine contractions in 10 minutes.

Category II or III FHR develops: Follow interventions listed to the right for Category II or Category III tracings.

With FHR Category II or Category III

- **Turn off oxytocin immediately, proceed with interventions <u>and</u> consult OB provider**
- Reposition patient
- IV fluid bolus
- Consider oxygen @ 10-12 L/min via non-rebreather face mask.
- If no response, consider obtaining an order for 0.25 mL Terbutaline subcutaneously

Resolution of Tachysystole:

If after a 10-30 minute period of observation the FHR pattern is normal and uterine contractions are inadequate (inadequate = MVU < 200 mmHg) then resume oxytocin.

Previous rate was	New rate now
Dc'd > 30 min ago	Starts at rate of beginning order
Dc'd < 30 min ago	Starts at half the previous rate

References: Refer to Multi-Disciplinary Guideline: Oxytocin for Induction of Labor, Augmentation of Labor, and Cervical Ripening

Definition of Adequate Labor: either

Contractions every 2-3 minutes, lasting approximately 90 seconds, per external tocometry, that are of moderate or strong intensity per palpation.

Or

With an IUPC in place, contraction strength demonstrates a minimum of 200-220 Montevideo Units (MVUs) per 10 minute interval and does not exceed 300 MVUs with resting tone ≤ 25 mmHg and ≥ 50 mmHg contraction intensity.

Attachment 4

ALASKA NATIVE MEDICAL CENTER

Fetal Heart Monitoring Algorithm (6.26.15)

Category I
Baseline rate: 110-160 bpm
Moderate variability
No late or variable decels
Early decels: present or absent
Accelerations: present or absent

Category II: Minimal variability (with or without accels) may occur after opiate administration for pain control and should resolve within the expected period of therapeutic effect. Such FHR patterns may also occur during Magnesium Sulfate administration. Minimal (but not absent) variability may also be seen with premature gestations and during fetal sleep cycles.

Continue care

Reevaluate **Per guideline**

Reassure Patient

Category II
(Includes all fetal heart rate tracings not in category I or Category III)
The following descriptions of category II tracings are not all inclusive. Other patterns may occur.

Category II (any of the following)
- Minimal variability not accompanied by decelerations
- Marked variability not accompanied by decelerations
- Tachycardia
- Recurrent late or variable decelerations, or variable decelerations accompanied by moderate baseline variability

- Proceed with possible interventions below **and** Consult OB Provider
- Possible Interventions:
  - o **Reduce Oxytocin in increments of 2 milliunits/min. If tachysystole is present refer to tachysystole algorithm.**
  - o Reposition patient
  - o IV fluid bolus
  - o Consider oxygen at 10-12 L/min via non-rebreather face mask
  - o Explain assessment and interventions; make plan of care with patient

Category II (any of the following)
- Bradycardia not accompanied by absent variability
- Absent baseline variability not accompanied by recurrent decelerations
- Absence of induced accelerations after fetal stimulation
- Recurrent late or variable decelerations, accompanied by minimal baseline variability
- Prolonged deceleration (greater than 2 minutes, but less than 10 minutes.)

- **Turn off Oxytocin immediately, Consult OB Provider, and proceed with interventions below.**
- Interventions:
  - o Reposition patient
  - o IV fluid bolus
  - o Administer oxygen at 10-12L/min via non-rebreather face mask
  - o Explain assessment and interventions; make plan of care with patient

Category III
- Absent FHR baseline variability **and ANY** of the following:
  - Recurrent late decelerations
  - Recurrent variable decelerations
  - Bradycardia

-OR-

- Sinusoidal Pattern

Turn off **Oxytocin Immediately and Consult OB Provider, Cesarean Delivery Provider, Scrub Tech, Anesthesia, and initiate all of the following interventions below:**

- Reposition patient **and** Call for Help
- IV fluid bolus
- Administer oxygen at 10-12L/min via non-rebreather face mask
- Explain assessments and interventions; make plan of care with patient
- Update NICU
- Prepare operating room
- Provide support for the family