Subject: Preterm Labor	
REVISION DATE: May 2013 REPLACES: OB Triage: Guidelines for Preterm Labor	WRITTEN: November 2001 SUPERSEDES DATE: 04/2007

Purpose: To provide guidelines for the care of women presenting to OB Triage reporting regular uterine contractions and/or suspected rupture of membranes before 37 weeks gestation. This guideline applies to all medical and nursing personnel.

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

1. References:

1.1. Troiano, N., Harvey, C., and Chez, B. (2013). *High-Risk and Critical Care Obstetrics* (3rd ed.). Ambler, PA: Association of Women's Health, Obstetric and Neonatal Nurses and Lippincott, Williams & Wilkins.

1.2. Lippincott, Williams, and Wilkins (2012). Premature rupture of membranes (PROM) patient care. Retrieved from http://procedures.lww.com/lnp/view.do?pId=951566&s=p&fromSearch=true&searchQuery=preterm+labor.

1.3. American College of Obstetrics and Gynecologists (2008). AGOG guidelines on premature rupture of membranes. *American Family Physician 77*(2), 245-246. Retrieved from http://www.aafp.org/afp/2008/0115/p245a.html.

1.4. American College of Obstetricians and Gynecologists (2011). Antenatal corticosteroid therapy for fetal maturation, committee opinion number 475. *American College of Obstetricians and Gynecologists (117)*, 422-424.

1.5. American College of Obstetrics and Gynecologists (2003, reaffirmed 2008). ACOG practice bulletin number 43: management of preterm labor. *Obstetrics and Gynecology 101*, 1039-1047.

2. Responsibilities:

2.1. Credentialed delivering provider.

2.1.1. Manage and assume responsibility for patient care administered.

2.1.2. Place appropriate medical orders in patient's Electronic Health Record (EHR) based on comprehensive patient assessment.

2.2. Nurse:

2.2.1. Provide recognized nursing standard of care to patients in coordination with provider's orders.

2.2.2. Acknowledge and carry-out all provider orders in the (EHR).

2.2.3. Report all assessment findings out of expected range to provider.

3. General

3.1. Preterm delivery accounts for 10-12% of all deliveries in North America and is responsible for significant neonatal morbidity and mortality.

3.2. The goal of tocolytic therapy is to prolong the gestation for at least 24 to 48 hours to allow administration of corticosteroids for fetal lung maturation (Troiano, Harvey, and Chez, 2013).

3.2.1.Individual tocolytics may delay labor for 2 to 7 days, however, no supportive evidence exists for the use of tocolytic therapy for > 48 hours.

3.2.2. Tocolytic drug categories include:

- Beta-adrenergic agonists
- Magnesium sulfate
- Prostaglandin synthetase inhibitors
- Calcium channel blockers

3.2.3. Contraindications to tocolytics include:

- Severe preeclampsia
- Placental abruption
- Intrauterine infection
- Lethal congenital or chromosomal abnormalities
- Advanced cervical dilation
- Evidence of fetal compromise
- Placental insufficiency

3.3. Antenatal corticosteroids significantly reduce the incidence and severity of neonatal respiratory distress syndrome, and the incidence of intraventricular hemorrhage and necrotizing enterocolitis.

4. Definitions

4.1. Preterm labor (PTL): Regular uterine contractions with progressive cervical changes occurring before 37 weeks.

4.2. Fetal Fibronectin (fFN): A protein produced in pregnancy that attaches the amniotic sac to the uterine lining. A negative fFN test is a reliable predictor that delivery will not occur in the next 7 days (a positive fFN does not predict imminent delivery) (Lippincott, 2013).

4.3. Premature Rupture Of Membranes (PROM): Spontaneous rupture of membranes before the onset of labor.

4.4. Preterm Premature Rupture Of Membranes (PPROM): Spontaneous rupture of membranes before 37 weeks gestation.

5. Standards of Practice/Guidelines for Care:

5.1. When a patient <37 weeks gestation presents to OB Triage reporting regular uterine contractions or possible rupture of the amniotic membranes: follow, "OB Triage Guidelines" for initial patient and fetal assessment and admission to OB Triage.

5.2. Perform a Non-Stress Test (NST) (see NST guidelines) and report findings to provider.

5.3. Upon completion of the NST, continue with continuous fetal and uterine electronic monitoring. Document per Fetal Heart Rate Monitoring Guidelines.

5.3. Determine the status of amniotic membranes:

5.3.1. If suspected rupture, confirm rupture by: Amnisure, Fern test, and/or visual pooling as situation warrants and per the provider's orders.

5.4. If PPROM confirmed:

5.4.1.***Refrain from performing a digital examination unless absolutely necessary*** to document advanced labor prior to transport. Digital examination increases the risk of infection and significantly decreases the latency period for the onset of labor (ACOG, 2008).

5.4.2. Assist physician (properly credentialed RN may perform) ultrasound to confirm presentation, size, amniotic fluid volume, and placentation.

5.4.3. If patient is 24-34 weeks gestation, administer Betamethasone 12 mg IM every 24 hours for a total of two doses, per provider's orders (ACOG, 2011).

5.4.4. Start peripheral IV with 18 gauge IV catheter per Lippincott guidelines, "IV catheter insertion" and draw provider ordered blood work (e.g. CBC, Type and Screen, and any necessary antepartum testing not yet completed).

5.4.5. Tocolytic therapy may be appropriate to facilitate transport or allow for course of corticoid steroids, but long-term treatment is not indicated (ACOG, 2008).

5.4.6. Initiate group B strep prophylaxis for 48 hours per provider's orders (see GBS guidelines)(ACOG, 2008).

5.4.7. At ANMC all PPROM are managed as in-patient. Transfer patient to assigned inpatient room via wheelchair and complete patient handoff to the assigned Mother Baby Unit nurse and document transfer of patient in patient's EHR. See "Inpatient Nursing Management of PPROM or Pre-Term Labor Patient" below.

5.5. If membranes are intact:

5.5.1. Obtain fetal fibronectin (fFN) test sample per provider's order ***before*** digital vaginal/cervical examination if fetal membranes have not ruptured. Digital vaginal exams, lubricants, sexual intercourse, and vaginal probe ultrasound may render the results inaccurate (Troiano, Harvey, and Chez, 2013).

5.5.1.1. Candidates for a fFN test are patients with signs and symptoms of PTL, intact membranes, singleton pregnancy, no cerclage, and minimal cervical dilation whose pregnancy is between 22 and 34.6 weeks gestation (Troiano, Harvey, and Chez, 2013).

5.5.1.2. Collect vaginal samples of fFN per manufacturer's instructions. Label the specimen and send to lab for processing.

5.5.2. Assist provider with a sterile speculum or preform a sterile digital vaginal examination, if no contraindications.

5.5.2.1.**Contraindications include**: Vaginal bleeding of uncertain etiology (exceeding bloody show), ruptured membranes and not in labor, known placenta previa, and/or vulvar lesions.

5.5.3. Assist physician (properly credentialed RN may perform) with ultrasound to confirm presentation, size, amniotic fluid volume, and placentation.

5.5.4. Assist provider with transvaginal ultrasound to assess cervical length and document in patient's EHR.

5.5.4.1. Cervical ultrasound and fFN testing have been shown to have a strong negative predictive value of preterm labor and therefor assist in determining need of tocolytic therapy (ACOG, 2003/2008).

5.5.5. If patient is 24-34 weeks gestation, administer Betamethasone 12 mg IM every 24 hours for a total of two doses per provider's orders (ACOG, 2011).

5.5.6. Administer tocolytic therapy per provider's orders.

5.5.6.1. Studies have shown no clear "first-line" tocolytic drug to manage preterm labor, therefore, "clinical circumstances and physician preference should dictate treatment (ACOG, 2003/2008, p. 6)."

5.5.7. Monitor patient for potential side-effects of tocolytic therapy (ACOG, 2008):

5.5.7.1. Magnesium sulfate (see "Magnesium Sulfate Administration" guideline): nausea, vomiting, drowsiness, blurred vision, lethargy, flushing, urinary retention, shortness of breath, pulmonary edema. Fetus: decreased heart rate variability, neonatal hypotonia and drowsiness.

- Magnesium sulfate toxicity: absent deep tendon reflexes, respiratory depression, decreased level of consciousness, decreased urinary output (See Magnesium Sulfate guideline).

5.5.7.2. Terbutaline sulfate (Brethine): anxiety, nervousness, jitteriness, tachycardia, hypotension, hyperglycemia, hypokalemia, and pulmonary edema. Fetal and neonatal tachycardia and hypoglycemia.

- Administered for short term use (48-72 hours).

- Hold medication if maternal heart rate is >120 bpm.

5.5.7.3. Indomethacin: nausea, vomiting, gastrointestinal bleeding, increased vaginal bleeding. Fetal oligohydramnios, potential premature closure of the ductus areterious.

5.5.7.4. Nifedepine (Procardia): nausea, headache, facial flushing, hypotension, tachycardia, and palpitations. Fetal tachycardia and intrauterine growth restrictions.

5.5.8. If patient is to remain inpatient for observation:

5.5.8.1. Start peripheral IV with 18 gauge IV catheter per Lippincott guideline "IV catheter insertion," draw provider ordered blood work (e.g. CBC, Type and Screen, and any necessary antepartum testing not yet completed).

5.5.8.2.Transfer patient to assigned inpatient room via wheelchair and complete patient handoff to the assigned Mother Baby Unit nurse. Document patient transfer and transfer of care.

5.6. Inpatient Nursing Management of PPROM or Pre-term labor patient:

5.6.1. Perform daily NST, or more frequently as ordered. Report any findings out of expected range to the provider.

5.6.2. Monitor contraction immediately if patient reports increased contraction intensity or frequency and document.

5.6.3. Monitor maternal temperature and fetal heart rate every 4 hours, or as ordered.

5.6.4. If PPROM: after completion of 48 hour course of GBS prophylaxis, 5 days of amoxicillin and erythromycin is recommended for expectant management of PPROM. Administer medication as ordered and chart in patient's EHR (ACOG, 2008).

5.6.5. Labor may be induced at 34 weeks or with mature vaginal pool amniotic fluid studies after consultation with the Pediatric service.

5.6.6. Group B strep prophylaxis with IV penicillin should be re-instated in labor

5.6.7. Patients < 32 weeks gestation will be transferred to a level III nursery facility for delivery (See Perinatal Transfer Guidelines).

6. Recommended documentation:

6.1. All assessment findings (e.g. maternal vital signs, fetal heart rate, contraction pattern, ultrasound).

6.2. All lab tests (e.g. fFN, blood work, Amnisure).

6.3. All medications administered using proper patient identification and medication bar code in patient's eMAR.

6.4. Any medication side effects noted and nursing interventions taken.

6.5. All provider communication, orders received, and actions taken.

7. Notify Provider immediately for the following:

7.1. Increase in frequency and intensity of uterine contractions.

7.2. Suspected rupture of membranes.

7.3. Maternal temperature >100.4.

7.4. Non-reassuring fetal heart rate.

7.5. Unexpected adverse medication side effects not controlled with nursing interventions.