

Western Dakota Tech
Registered Nursing Program
NURS 270 Maternal-Child Nursing
Labor and Delivery Simulation

Objectives:

1. Recognize the normal progression of the active phase of labor and the second stage of labor (CLO 3).
2. Recognize normal fetal heart rate (FHR) patterns and normal uterine contraction frequency (CLO 3).
3. Provide adequate support and comfort to the laboring woman (CLO 1, 5, 9).
4. Prepare the woman for delivery and perform the basic maneuvers for assisting a vaginal delivery (CLO 3, 7).
5. Perform basic handling of the neonate (CLO 3).
6. Identify major postpartum hemorrhage (CLO 1, 3, 4).
7. Discuss possible causes of hemorrhage (CLO 3).
8. Provide adequate hemodynamic support to the patient (CLO 3, 6, 7, 8).
9. Applies pharmacological measures to treat uterine atony (CLO 3, 6, 7, 8).
10. Applies mechanical methods to treat uterine atony (CLO 3, 6, 7, 8).

Pre-Sim (45 minutes-1 hour)

1. Read objectives listed above to students.
2. Discuss pre-sim questions with students. Allow all to contribute to answers.
 - a. Describe the signs of true labor.
 - b. What assessments should be made to evaluate the progress of labor?
 - c. How will you meet the emotional needs of a laboring patient?
 - d. How is pain managed during labor?
 - e. How are the frequency and duration of uterine contractions determined?
 - f. What is a reassuring fetal heart rate pattern?
 - g. How will you recognize when birth is imminent?
 - h. How will you prepare the patient and the room for birth?
 - i. What are the signs of placental separation?
 - j. What is the frequency of post-partum hemorrhage in industrialized countries?
 - k. What are the most common causes of immediate post-partum hemorrhage?
 - l. What are the most important risk factors for post-partum uterine atony?
 - m. What are other causes of post-partum bleeding?
 - n. How is post-partum hemorrhage treated?
3. **Give SBAR report** to students on patient:
 - a. Paula Jimenez (DOB 10/8/1993) is a 27-year-old female who was admitted in labor four hours ago at 40 weeks gestation. Primigravida with no history of medical complications and her pregnancy has been uneventful with routine and regular prenatal care. The patient has no known drug allergies and is awake and alert. She is on a prenatal vitamin daily at home, is a full code, and is married.
 - b. Assessment:
 - i. Vital Signs: HR 84, BP 114/78, RR 24, SpO2 has been 98% on room air, Temp 37C, FHR 130s, reassuring with moderate variability noted
 - ii. General Appearance: 40 weeks gestation
 - iii. Cardiovascular: Normal sinus rhythm on telemetry monitoring
 - iv. Respiratory: Clear breath sounds

- v. GI: Active bowel sounds
 - vi. GU: No complaints
 - vii. Fundal Height: 35cm
 - viii. Vaginal Exam: Cervix 100% effaced, 7cm dilated, cephalic presentation (vertex) at -2, ruptured membranes, clear fluid, contractions are regular at 4-minute intervals
 - ix. Extremities: Pink, warm
 - x. Skin: Warm, dry and pale. Adequate turgor
 - xi. Neurological: Alert and oriented to person, place and time. Pupils equal, round, reactive to light and accommodation. No neurological deficits.
 - xii. IVs: None
 - xiii. Labs: O positive, Group B streptococcus negative
 - xiv. Fall Risk: Low-risk for falls
 - xv. Pain: No analgesia has been requested
 - xvi. Recommendations: Monitor progression of active phase of labor and prepare for normal delivery.
4. Break students into groups of three or four, then have students draw roles.
 - a. Primary nurse
 - b. Secondary nurse (or family member if you would like)
 - c. Medication nurse
 - d. LPN/CNA (leave this one out if group of 3 students)
 5. Read the pre-sim information provided on the laminated sheets within the debrief room that you have not already discussed with the students.
 - a. Take students into simulation room to allow them to look around, find supplies, ask questions about the simulator, etc.
 6. Bathroom break.
 7. Pull up video screen in debrief room for students to watch.
 - a. Roger or Krista will set up for you.
 8. Begin simulation with first group of 4 students.

Sim (total of 2.5-3 hours, including debriefing time)

1. Run through State 1 and State 2 of the scenario with the first group of students as written (30-45 minutes).
 - a. **State 1:** the patient demonstrates a HR in the 80s, BP in the 100s/70s, RR in the mid 20s, and SpO2 in the upper 90s on room air and a temperature of 37C. Vaginal examination on admission revealed that the cervix is 100% effaced and 7cm dilated. The fetus is in cephalic presentation (vertex) at -2, and the membranes were found to be ruptured upon vaginal examination. The fundal height is 35cm and the fetal heart rate is 140s beats per minute. The patient is presenting regular contractions at 4-minute intervals. No analgesia has been requested. The learner is expected to provide support and information to patient and family, recognize cervical dilatation, evaluate FHR and contractions and recognize regular contraction frequency.
 - i. **State 1 Orders:**
 1. No new orders.
 - b. **State 2 (4 hours later):** the patient demonstrates a HR in the 80s, BP in the 120s/80s, RR in the upper 20s, SpO2 in the upper 90s on room air and the FHR is in the 140s. The patient states that she feels the urge to push. The learner is expected to complete a vaginal examination and find the cervix 10cm dilated and fetus at +1 station, recognize the start of second stage labor, ensure the presence of

appropriate personnel in the room, position and prepare the patient for delivery, and complete the delivery of the fetus.

i. **State 2 Orders:**

1. Oxytocin 10 units IM or Oxytocin 30 units/500 mL via 0.9% Normal Saline IV, available at time of delivery to be given per healthcare provider order
2. Lidocaine 1% with suturing for post-delivery repair PRN
3. Place Operating Room on standby whenever a manual extraction of placenta is required

- ii. The patient delivered a healthy baby (2754 gm) without complications. The newborn had an Apgar score of 9/10. No episiotomy was performed.

- c. **State 3:** the patient demonstrates a HR in the 70s, BP in the 110s/70s, RR in the teens and SpO2 in the upper 90s on room air. The learner is expected to deliver and examine the placenta.

i. **State 3 Orders:**

1. No new orders.

- ii. The placenta was delivered and is visually complete. Her pregnancy, labor, and delivery have been uneventful.

- d. Once students complete discharge teaching, pause the simulation and meet back in the debrief room with all students.

2. **Debrief Questions** (approximately 1.5-2 times longer than the simulation lasted):

- a. What was the experience like for you?
- b. What happened and why?
- c. What did you do and was it effective?
- d. Discuss your interventions (technical and non-technical). Were they performed appropriately and in a timely manner?
- e. How did you decide on your priorities for care and what would you change?
- f. How did patient safety concerns influence your care? What did you overlook?
- g. In what ways did you personalize your care for this patient and family members (recognition of culture, concerns, anxiety)?
- h. Discuss your teamwork. How did you communicate and collaborate? What worked, what didn't work, and what will you do differently next time?
- i. What are you going to take away from this experience?

3. Have the first group of students give SBAR report to the second group of students.

a. **Additional Report:**

- i. The patient delivered a healthy baby (2754 gm) without complications. The newborn had an Apgar score of 9/10. No episiotomy was performed. The placenta was delivered and is visually complete. Her pregnancy, labor, and delivery have been uneventful.

b. **Initial Orders:**

- i. Admit to: Labor and Delivery
- ii. Diagnosis: Intrauterine Term Gestation (39 weeks)
- iii. Condition: Stable
- iv. Code Status: Full code
- v. Allergies: NKDA
- vi. Vitals Signs: Per unit protocol
- vii. Diet: NPO except ice chips and medications

- viii. Activity: Up ad lib after admission assessment
 - ix. Monitors: Continuous external fetal heart rate monitoring
 - x. Oxygen: 10 Liters per mask PRN for intrauterine resuscitation measures for category II or III fetal heart rate tracing.
 - xi. Medications: Call for analgesia orders
 - xii. Consults: Notify anesthesia for high-risk patients
 - xiii. Labs: Prenatal Labs if not done or Unknown: STAT
 - 1. Type & Screen
 - 2. CBC with Differential
 - 3. HIV (Obtain patient consent)
 - 4. Rubella IgG Antibody
 - 5. RPR
 - 6. HIV
 - 7. Hepatitis B Surface Antigen
 - 8. Drug Screen Urine
 - xiv. Other: Notify MD/CNM of:
 - 1. Temperature greater than 38.3C
 - 2. Non-reassuring FHR patterns
 - 3. Insufficient uterine activity
 - 4. Prenatal labs that were not done
4. Second group of students begin Postpartum Hemorrhage scenario while first group is watching in the debrief room.
- a. First group of students can be part of the “code team” if needed.
 - b. **State 1:** the patient demonstrates a HR in the 120s, BP in the 90s/60s, RR in the mid 20s and SpO2 in the upper 90s on room air. The patient starts to complain of dizziness and loss of vision. The learner is expected to assess the state of uterine contractions, place a urinary catheter, start external uterine massage, start intravenous access draw lab work, initiate crystalloid infusions at a high rate, lower the patient's head, and initiate oxygen and continuous ECG monitoring.
 - i. **State 1 Orders:**
 - 1. No new orders.
 - c. **State 2:** the patient's condition demonstrates a HR in the 100s, BP in the 100s/70s, RR in the upper teens, and SpO2 in the upper 90s on room air. The learner is expected to consider the need for colloids. If blood products are administered, the facilitator should manually transition to **State 4**.
 - i. **State 2 Orders:**
 - 1. No new orders.
 - d. **State 3:** the patient's condition demonstrates a HR in the 130s, BP in the 80s/60s, RR in the mid 20s, and SpO2 in the upper 90s on room air. The uterus is again in a boggy state. The learner is expected to reassess the state of uterine contraction, initiate external uterine massage, reassess the cause of bleeding and consider the need for colloids. If blood products administered, the facilitator should manually transition to **State 4**.
 - i. **State 3 Orders:**
 - 1. Start external fundal massage
 - 2. Insert urinary catheter

3. Initiate IV access and start 500 mL normal saline with 30 units oxytocin bolus over one hour. After bolus, continue 1000 mL normal saline with 20 units oxytocin and infuse at 150 mL/hour
 4. Methylergonovine 0.2 mg IM now and repeat every 4 hours up to 2 times, then Methylergonovine 0.2 mg PO every 6 hours until discharged.
 5. Obtain CBC, PT, PTT and type and cross match for 2 units of packed red blood cells
 6. Titrate oxygen to keep SpO₂ greater than 92%
- e. **State 4:** the patient's condition demonstrates a HR in the 80s-100s, BP in the 100s-110s/60s-70s, RR in the upper teens, SpO₂ in the upper 90s. The learner is expected to assess the patient's response to the administration of blood products.
- i. **State 4 Orders:**
 1. No new orders.
- f. **State 5:** the patient's condition demonstrates a HR in the 110s, BP in the 90s/60s, RR in the upper teens, SpO₂ in the upper 90s. The uterus remains boggy. The learner is expected to administer prostaglandins as ordered and evaluate their effect on uterine contraction. **OR** The learner is expected to initiate bimanual uterine compression and evaluate the efficacy of interventions on uterine contraction. **OR** The learner is expected to insert or assist with the insertion of an intrauterine balloon, fill balloon with 500 mL fluid, and evaluate the effectiveness of intervention on uterine contraction. **OR** The learner is expected to prepare the patient for transfer to Interventional Radiology for embolization. **OR** The learner is expected to prepare the patient for emergency surgery
- i. **State 5 Orders:**
 1. Carboprost 250 mcg IM
 2. Acetaminophen 1 g PO
 3. Loperamide 4 mg PO **OR** Misoprostol 400 to 600 mcg SL or PR **OR** Sulprostone 100 mcg/hr IV
- g. Once the students reach the end of the scenario, end the simulation and meet back in the debrief room with all students.
5. **Debrief Questions** (approximately 1.5-2 times longer than the simulation lasted):
- a. What was the experience like for you?
 - b. What happened and why?
 - c. What did you do and was it effective?
 - d. Discuss your interventions (technical and non-technical). Were they performed appropriately and in a timely manner?
 - e. How did you decide on your priorities for care and what would you change?
 - f. How did patient safety concerns influence your care? What did you overlook?
 - g. In what ways did you personalize your care for this patient and family members (recognition of culture, concerns, anxiety)?
 - h. Discuss your teamwork. How did you communicate and collaborate? What worked, what didn't work, and what will you do differently next time?
 - i. What are you going to take away from this experience?

Post-Sim

1. Have students fill out the SET-M survey regarding the simulation prior to them leaving for the day.

- a. Found on all the tables in the debrief rooms.
 - b. Place completed forms in the appropriately labeled basket at the main nurse's station.
2. Enter attendance for students.
 - a. "Present" if attended sim on time.
 - b. "Tardy" if late to sim.
 - c. "Absent – Unexcused" if non at sim.
 - d. "Absent – Excused" if in a different sim group not scheduled for that day.
3. Enter grades for students.