Normal Labour and Delivery Period NCLEX Review

I. Process of Labor—4 P's

A. Description
1. Labor: Coordinated sequence of involuntary, intermittent uterine contractions
2. Birth: Actual event of birth

B. Four major factors (4 P's) interact during normal childbirth; the 4 P's are interrelated and depend on each other for a safe birth and are Powers, Passageway, Passenger, and Psyche.

C. Powers: Uterine contractions
1. Forces acting to expel the fetus
2. Effacement: Shortening and thinning of the cervix during the first stage of labor
3. Dilation: Enlargement of cervical os and cervical canal during the first stage of labor
4. Pushing efforts of mother during the second stage

D. Passageway: The mother's rigid bony pelvis and the soft tissues of the cervix, pelvic floor, vagina, and introitus (external opening to the vagina)

E. Passenger: The fetus, membranes, and placenta

F. Psyche: A woman's emotional structure that can determine her entire response to labor and influence physiological and psychological functioning; the mother may experience anxiety or fear.

G. Attitude
1. Attitude is the relationship of the fetal body parts to one another.
2. Normal intrauterine attitude is flexion, in which the fetal back is rounded, the head is forward on the chest, and the arms and legs are folded in against the body. The other attitude, extension, tends to present larger fetal diameters.

H. Lie
1. Relationship of the spine of the fetus to the spine of the mother
2. Longitudinal or vertical

a. Fetal spine is parallel to the mother's spine.
b. Fetus is in cephalic or breech presentation.

3. Transverse or horizontal
a. Fetal spine is at a right angle, or perpendicular, to the mother's spine.
b. Presenting part is the shoulder.
c. Delivery by cesarean section is necessary.

I. Presentation
1. Portion of the fetus that enters the pelvic inlet first
2. Cephalic: Head first

a. Cephalic is the most common presentation.
b. Cephalic presentation has 4 variations: vertex, military, brow, and face.

3. Breech: Buttocks present first.

a. Delivery by cesarean section may be required, although vaginal birth is often possible.
b. Breech presentation has 3 variations: frank, full (complete), and footling.

4. Shoulder

a. Fetus is in a transverse lie, or the arm, back, abdomen, or side could present.
b. If the fetus does not spontaneously rotate, or if it is impossible to turn the fetus manually, a cesarean section may need to be performed.

J. Presenting part: The specific fetal structure lying nearest to the cervix

K. Position: Relationship of assigned area of the presenting part or landmark to the maternal pelvis
L. Station

1. The measurement of the progress of descent in centimeters above or below the midplane from the presenting part to the ischial spine
2. Station 0: At ischial spine
3. Minus station: 332 Above ischial spine

4. Plus station: Below ischial spine
5. Engagement: When the widest diameter of the presenting part has passed the inlet; corresponds to a 0 station

II. Mechanisms of Labor

A. Assessment

1. Lightening or dropping: Is also known as engagement and occurs when the fetus descends into the pelvis about 2 weeks before birth; lightening or dropping is most noticeable in first pregnancies.

2. Braxton Hicks contractions increase.

3. The vaginal mucosa is congested, and vaginal discharge increases.

4. Brownish or blood-tinged cervical mucus is passed.

5. Cervix ripens, becomes soft and partly effaced, and may begin to dilate.

6. The mother has a sudden burst of energy, also known as “nesting,” often 24 to 48 hours before onset of labor.

7. Weight loss of 1 to 3 lb results from fluid shifts produced by the changes in progesterone and estrogen levels 24 to 48 hours before the onset of labor.

8. Spontaneous rupture of membranes occurs.

a. True labor: Contractions may manifest as back pain in somewomen; contractions often resemble menstrual cramps during early labor
b. False labor: Also known as prodromal labor, contractions are felt in the abdomen and groin and may be more annoying than painful

In true labor, contractions increase in duration and intensity and cervical dilation and effacement are progressive, with engagement and descent of the fetus. In false labor, contractions are irregular and do not produce dilation, effacement, or descent.

III. Leopold's Maneuvers

A. Description:Methods of palpation to determine presentation and position of the fetus and aid in location of fetal heart sounds

B. If the head is in the fundus, a hard, round, movable object is felt. The buttocks feel soft and have an irregular shape and are more difficult to move.

C. The fetus's back, which is a smooth, hard surface, should be felt on 1 side of the abdomen.

D. Irregular knobs and lumps,which may be the hands, feet, elbows, and knees, are felt on the opposite side of the abdomen.

IV. Breathing Techniques
A. Provide a focus during contractions, interfering with pain sensory transmission.
B. Promote relaxation and oxygenation.
C. Begin with simple breathing patterns and progress to more complex ones as needed.

V. Fetal Monitoring

A. Description

1. The fetal monitor displays the fetal heart rate (FHR).
2. The device monitors uterine activity.
3. The monitor assesses frequency, duration, and intensity of contractions.
4. Themonitor assesses FHRin relation to maternal contractions.
5. Baseline FHR is measured between contractions; the normal FHRat term is 110 to 160 beats/minute.

B. External fetal monitoring

1. External fetal monitoring is noninvasive and isbperformed with a tocotransducer or Doppler ultrasonic transducer.
2. Leopold's maneuvers are performed to determine on which side the fetal back is located, and the ultrasound transducer is placed over this area (fasten with a belt or stocking tubing).
3. The tocotransducer is placed over the fundus of the uterus, where contractions feel the strongest (fasten with a belt or stocking tubing).
4. The client is allowed to assume a comfortable position, avoiding vena cava compression

(maternal supine hypotensive syndrome).
5. The preferred position is to have the client lie on her side to increase perfusion.

C. Internal fetal monitoring

1. Internal fetal monitoring is invasive and requires rupturing of the membranes and attaching an electrode to the presenting part of the fetus.
2. The client must be dilated 2 to 3 cm to perform internal monitoring.

D. Periodic patterns in FHR

1. Fetal bradycardia and tachycardia

a. Bradycardia: FHR is less than 110 beats/ minute for 10 minutes or longer.
b. Tachycardia: FHR is more than 160 beats/ minute for 10 minutes or longer.

If fetal bradycardia or tachycardia occurs, change the position of the mother, administer oxygen, and assess the mother's vital signs. Notify the health care provider (HCP) as soon as possible.

2. Variability

a. Fluctuations in baseline FHR
b. Absent or undetected variability is considered nonreassuring.
c. Decreased variability can result from fetal hypoxemia, acidosis, or certain medications.
d. A temporary decrease in variability can occur when the fetus is in a sleep state (sleep states do not usually last longer than 30 minutes).

3. Accelerations

a. Brief, temporary increases in FHR of at least 15 beats/minute more than baseline and lasting at least 15 seconds
b. Usually are a reassuring sign, reflecting a responsive, nonacidotic fetus
c. Usually occur with fetal movement
d. May be nonperiodic (having no relation to contractions) or periodic (with contractions)

e. May occur with uterine contractions, vaginal examinations, or mild cord compression, or when the fetus is in a breech presentation

4. Early decelerations
a. Early decelerations are decreases in FHR below baseline; the rate at the lowest point of the deceleration usually remains greater than 100 beats/minute.
b. Early decelerations occur during contractions as the fetal head is pressed against the mother's pelvis or soft tissues, such as the cervix, and return to baseline FHR by the end of the contraction.
c. Tracing shows a uniform shape and mirror image of uterine contractions.
d. Early decelerations are not associated with fetal compromise and require no intervention.

5. Late decelerations

a. Late decelerations are nonreassuring patterns that reflect impaired placental exchange or uteroplacental insufficiency.

b. The patterns look similar to early decelerations, but begin well after the contraction begins and return to baseline after the contraction ends.
c. The degree of decline in FHR from baseline is not related to the amount of uteroplacental insufficiency.
Interventions for late decelerations include immediately improving placental blood flow and fetal oxygenation.

6. Variable decelerations

a. Variable decelerations are caused by conditions that restrict flow through the umbilical cord.
b. Variable decelerations do not have the uniform appearance of early and late decelerations.
c. The shape, duration, and degree of decline below baseline FHR are variable; these fall and rise abruptly with the onset and relief of cord compression.
d. Variable decelerations also may benon periodic, occurring at times unrelated to contractions.
e. Baseline rate and variability are considered when evaluating variable decelerations.
f. Variable decelerations are significant when FHR repeatedly declines to less than 70 beats/minute and persists at that level for at least 60 seconds before returning to baseline.

If variable decelerations occur, discontinue oxytocin if infusing, change the position of the mother, administer oxygen, and assess the mother's vital signs. Notify the HCP. Assist with amnioinfusion (intrauterine instillation of warmed saline to decrease compression on the umbilical cord) if prescribed.

7. Hypertonic uterine activity

a. Assessment of uterine activity includes frequency, duration, intensity of contractions, and uterine resting tone; assessment is performed either by palpating by hand or with an internal uterine pressure catheter (IUPC).
b. The uterus should relax between contractions for 60 seconds or longer.
c. Uterine contraction intensity is about 50 to 75 mm Hg (with an IUPC) during labor and may reach 110 mm Hgwith pushing during the second stage.
d. The average resting tone is 5 to 15 mm Hg.
e. In hypertonic uterine activity, the uterine resting tone between contractions is high, reducing uterine blood flow and decreasing fetal oxygen supply.

8. Nonreassuring FHR patterns
9. Interventions for nonreassuring patterns (see Priority Nursing Actions)

VI. Four Stages of Labor
A. Stage 1: Latent phase

1. Description: Stage 1 is the longest. A labor curve, such as the Friedman curve, may be used to identify whether a woman's cervical dilation is progressing at the expected rate.
2. Assessment

a. Cervical dilation is 1 to 4 cm.

b. Uterine contractions occur every 15 to 30 minutes, are 15 to 30 seconds in duration, and are of mild intensity.
3. Interventions

a. Encourage mother and partner to participate in care.
b. Assist with comfort measures, changes of position, and ambulation.
c. Keep mother and partner informed ofprogress.
d. Offer fluids and ice chips.
e. Encourage voiding every 1 to 2 hours.

B. Stage 1: Active phase

1. Assessment

a. Cervical dilation is 4 to 7 cm.
b. Uterine contractions occur every 3 to 5 minutes, are 30 to 60 seconds in duration, and are of moderate intensity.

2. Interventions

a. Encouragemaintenance of effective breathing patterns.
b. Provide a quiet environment.
c. Keep mother and partner informed ofprogress.
d. Promote comfort with back rubs, sacral pressure, pillow support, and position changes.
e. Instruct partner in effleurage (light stroking of abdomen).
f. Offer fluids and ice chips and ointment for dry lips.
g. Encourage voiding every 1 to 2 hours.

C. Stage 1: Transition phase

1. Assessment

a. Cervical dilation is 8 to 10 cm.
b. Uterine contractions occur every 2 to 3 minutes, are 45 to 90 seconds in duration, and are of strong intensity.
2. Interventions

a. Encourage rest between contractions.
b. Wake mother at beginning of contraction so she can begin breathing pattern.
c. Keep mother and partner informed of progress.
d. Provide privacy.
e. Offer fluids and ice chips and ointment for dry lips.
f. Encourage voiding every 1 to 2 hours.

D. Interventions throughout stage 1

1. Monitor maternal vital signs.
2. Monitor FHR via ultrasound Doppler, fetoscope, or electronic fetal monitor.

3. Assess FHR before, during, and after a contraction, noting that the normal FHR is 110 to 160 beats/minute.
4. Monitor uterine contractions by palpation or tocodynamometer, determining frequency, duration, and intensity.
5. Assess status of cervical dilation and effacement.
6. Assess fetal station presentation and position by Leopold's maneuvers.
7. Assist with pelvic examination and prepare for a fern test.

If the membranes have ruptured, assess the FHR because of the risk of prolapsed umbilical cord, and assess the color of the amniotic fluid because meconium-stained fluid can indicate fetal distress.

E. Stage 2

1. Assessment

a. Cervical dilation is complete.
b. Progress of labor is measured by descent of fetal head through the birth canal (change in fetal station).
c. Uterine contractions occur every 2 to 3 minutes, lasting 60 to 75 seconds, and are of strong intensity.
d. Increase in bloody show occurs.
e. Mother feels urge to bear down; assist mother in pushing efforts.

2. Interventions

a. Perform assessments every 5 minutes.
b. Monitor maternal vital signs.
c. Monitor FHR via ultrasound Doppler, fetoscope, or electronic fetal monitor.
d. Assess FHR before, during, and after a contraction, noting that the normal FHR is 110 to 160 beats/minute.

e. Monitor uterine contractions by palpation or tocodynamometer, determining frequency, duration, and intensity.
f. Provide mother with encouragement and praise and provide for rest between contractions.
g. Keep mother and partner informed of progress.
h. Maintain privacy.
i. Provide ice chips and ointment for dry lips.
j. Assist mother into a position that promotes comfort and facilitates pushing efforts, such as lithotomy, semisitting, kneeling, sidelying, or squatting.
k. Monitor for signs of approaching birth, such as perineal bulging or visualization of the fetal head.
l. Prepare for birth (expulsion of the fetus).

F. Stage 3

1. Assessment

a. Contractions occur until the placenta is expelled.
b. Placental separation and expulsion occur.

c. Expulsion of the placenta occurs 5 to 30 minutes after the birth of the infant.
d. Schultze mechanism: Center portion of the placenta separates first, and its shiny fetal surface emerges from the vagina.
e. Duncan mechanism: Margin of the placenta separates, and the dull, red, rough maternal surface emerges from the vagina first.
f. Method of placental presentation is of no clinical significance.

2. Interventions

a. Assess maternal vital signs.
b. Assess uterine status.
c. Provide parents with an explanation regarding expulsion of the placenta.
d. After expulsion of the placenta, uterine fundus remains firm and is located 2 finger breadths below the umbilicus.
e. Examine placenta for cotyledons and membranes to verify that it is intact.
f. Assess mother for shivering and provide warmth.
g. Promote parental-neonatal attachment.

G. Stage 4

1. Description: Period 1 to 4 hours after birth

2. Assessment

a. Blood pressure returns to prelabor level.
b. Pulse is slightly lower than during labor.
c. Fundus remains contracted, in the midline, 1 or 2 fingerbreadths below the umbilicus. Monitor lochia discharge. Lochia may be moderate in amount and red in color in stage 4.

3. Interventions

a. Perform maternal assessments every 15 minutes for 1 hour, every 30 minutes for
1 hour, and hourly for 2 hours (or as per agency policy).
b. Provide warm blankets.
c. Apply ice packs to the perineum.
d. Massage the uterus if needed, and teach the mother to massage the uterus.
e. Provide breast-feeding support as needed.
f. See Chapter 31 for information on caring for the newborn.

VII. Anesthesia

A. Local anesthesia

1. Local anesthesia is used for blocking pain during episiotomy.
2. Local anesthesia is administered just before the birth of the infant.
3. The anesthetic has no effect on the fetus.

B. Lumbar epidural block

1. Injection site is in epidural space at L3 to L4.
2. The block is administered after labor is established or just before a scheduled cesarean birth.
3. The anesthetic relieves pain from contractions and numbs the vagina and perineum.
4. The block may cause hypotension, bladder distention, and a prolonged second stage.
5. The anesthetic does not cause a headache because the dura mater is not penetrated.
6. Assess maternal blood pressure and assess bladder frequently.
7. Maintain the mother in a side-lying position or place a rolled blanket beneath the right hip to displace the uterus from the vena cava.
8. Administer intravenous (IV) fluids as prescribed.
9. Increase fluids as prescribed if hypotension occurs.
10. Observe for any adverse effects from opioid epidurals, such as nausea and vomiting, pruritus, or respiratory depression.

C. Intrathecal opioid analgesics

1. Themedication is injected into the subarachnoid space and has a rapid onset of action.
2. It may be used in combination with a lumbar epidural block.

D. Subarachnoid (spinal) block

1. Injection site is in the spinal subarachnoid space at L3 to L5.
2. The block is administered just before birth.
3. The anesthetic relieves uterine and perineal pain and numbs the vagina, perineum, and lower extremities.
4. The anesthetic may cause maternal hypotension.
5. The anesthetic may cause postpartum headache.

6. The mother must lie flat for 8 to 12 hours after spinal injection.
7. Administer IV fluids as prescribed.

E. General anesthesia

1. General anesthesiamaybe used for some surgical interventions.
2. The mother is not awake.

General anesthesia presents a maternal danger of respiratory depression, vomiting, and aspiration.

VIII. Obstetrical Procedures

A. Bishop score

1. The Bishop score is used to determine maternal readiness for labor and evaluates cervical status and fetal position.
2. The Bishop score is indicated before the induction of labor.
3. The 5 factors are assigned a score of 0 to 3, and the total score is calculated.
4. A score of 6 or more indicates a readiness for labor induction.

B. Induction

1. Induction is a deliberate initiation of uterine contractions that stimulates labor.
2. Elective induction may be accomplished by oxytocin infusion.
3. Obtain a baseline tracing of uterine contractions and FHR.
4. Increase the IV dosage of oxytocin as prescribed only after assessing contractions, FHR, and maternal blood pressure and pulse.
5. Do not increase the rate of oxytocin when the desired contraction pattern is obtained (contraction frequency of 2 to 3 minutes and lasting 60 seconds).

An oxytocin infusion is discontinued if uterine contraction frequency is less than 2 minutes or duration is longer than 90 seconds, or if fetal distress is noted.

C. Amniotomy

1. Artificial rupture of the membranes is performed by the HCP or nurse-midwife to stimulate labor.
2. Amniotomy is performed if the fetus is at 0 or a plus station.
3. Amniotomy increases the risk of prolapsed cord and infection.
4. Monitor FHR before and after amniotomy.
5. Record time of amniotomy, FHR, and characteristics of the fluid.
6. Meconium-stained amniotic fluid may be associated with fetal distress.
7. Bloodyamniotic fluid mayindicate abruptio placentae or fetal trauma.
8. An unpleasant odor to amniotic fluid is associated with infection.
9. Polyhydramnios is associated with maternal diabetes and certain congenital disorders.
10. Oligohydramnios is associated with intrauterine growth restriction and congenital disorders.
11. Expect more variable decelerations after rupture of the membranes as a result of possible cord compression during contractions.
12. Limit client activity if prescribed.

D. External version

1. External version is the manipulation of the fetus from an unfavorable presentation into a favorable presentation for birth
2. External version is indicated for an abnormal presentation that exists after the thirty-fourth week.
3. Monitor vital signs.
4. If the mother is Rh-negative, ensure that Rho(D) immune globulin was given at 28 weeks of gestation.
5. Prepare for a nonstress test to evaluate fetal wellbeing.
6. IV fluids and tocolytic therapy may be administered to relax the uterus and permit easier manipulation of the fetus.
7. Ultrasound is used during the procedure to evaluate fetal position and placental placement and guide direction of the fetus.
8. The abdominal wall is manipulated to direct the fetus into a cephalic presentation if possible.
9. Monitor blood pressure to identify vena cava compression.
10. Monitor for unusual pain.
11. After the procedure, do the following:

a. Perform a nonstress test to evaluate fetal wellbeing.
b. Monitor for uterine activity, bleeding, ruptured membranes, and decreased fetal activity.
c. With Rh-negative clients, perform Kleihauer- Betke test as prescribed to detect the presence and amount of fetal blood in the maternal circulation and to identify clients who need additional Rho(D)

immune globulin.

E. Episiotomy

1. An episiotomy is an incision made into the perineum to enlarge the vaginal outlet and facilitate birth.
2. The use of this procedure has declined dramatically in recent years.
3. Check the episiotomy site.
4. Institute measures to relieve pain.
5. Provide ice packs during the first 24 hours.
6. Instruct the client in the use of an ice pack for the first 24 hours, and then sitz baths thereafter.
7. Apply analgesic spray or ointment as prescribed.
8. Provide perineal care, using clean technique.
9. Instruct the client in the proper care of the incision.
10. Instruct the client to dry the perineal area from front to back and to blot the area rather than wipe it.
11. Instruct the client to shower rather than bathe in a tub.
12. Apply a perineal pad without touching the inside surface of the pad.
13. Report any bleeding or discharge from the episiotomy site to the HCP.

F. Forceps delivery

1. Two double-crossed, spoonlike articulated blades are used to assist in the delivery of the fetal head.
2. Reassure the mother and explain the need for forceps.
3. Monitor the mother and fetus during delivery.
4. Check the neonate and mother after delivery for any possible injury.
5. Assist with repair of any lacerations.

G. Vacuum extraction

1. A caplike suction device is applied to the fetal head to facilitate extraction.
2. Suction is used to assist in delivery of the fetal head.
3. Traction is applied during uterine contractions until descent of the fetal head is achieved.
4. The suction device should not be kept in place any longer than 25 minutes.
5. Monitor FHR every 5 minutes if external fetal monitoring is not used.
6. Assess infant at birth and throughout the postpartum period for signs of cerebral trauma.
7. Monitor for developing cephalhematoma.
8. Caput succedaneum is normal and resolves in 24 hours.

H. Cesarean delivery

1. Cesarean section is delivery of the fetus usually through a transabdominal, low-segment incision of the uterus.

2. Preoperative

a. If planned, prepare the mother and partner.
b. If an emergency, quickly explain the need and procedure to the mother and partner.

c. Obtain informed consent.
d. Ensure that the preoperative diagnostic tests are done, including Rh factor determination.
e. Prepare to insert an IV line and an indwelling urinary catheter.
f. Prepare the abdomen as prescribed.
g. Monitor the mother and fetus continuously.
h. Provide emotional support.
i. Administer preoperative medications as prescribed.

3. Postoperative

a. Monitor vital signs.
b. Perform a fundal assessment; evaluate incision.
c. Provide pain relief.
d. Encourage turning, coughing, and deep breathing.
e. Encourage ambulation.
f. Encourage bonding and attachment with newborn.
g. Provide psychological support.
h. Monitor for signs of infection and bleeding.
i. Burning and pain on urination may indicate a bladder infection.
j. A tender uterus and foul-smelling lochia may indicate endometritis.
k. A productive cough or chills may indicate pneumonia.
l. Pain, redness, or edema of an extremity may indicate thrombophlebitis