Chapter 6

Nursing Care of Mother and Infant During Labor and Birth

Cultural Influences on Birth Practices

- Role of woman in labor and delivery
  - Cultural preferences require flexibility
- Role of father/partner in labor and delivery
  - May be driven by cultural practices

Settings for Childbirth

- Hospitals
  - Advantages-preregistration, easy access to sophisticated resources, family centered care for complicated pregnancy
  - Disadvantages
- Freestanding birth centers
  - Advantages-home like settings, lower costs
  - Disadvantages-immediate emergency access
- Home
  - Advantages-control over persons around; no risk of cross contamination; low tech birth
  - Disadvantages-limited choice of birth attendants; immediate emergency access

Components of the Birth Process

- The Four "Ps"
  - Powers
  - Passage
  - Passenger
  - Psyche

Factors that Influence the Progress of Labor

- Preparation
- Position
- Professional
- Place
- Procedures
- People-Table with-***Birth Practices of Selected Cultural Groups***

Uterine Contractions

- Effect of contractions on the cervix
  - Efface
  - Dilate
- Phase of contractions
  - Increment
  - Peak
  - Decrement

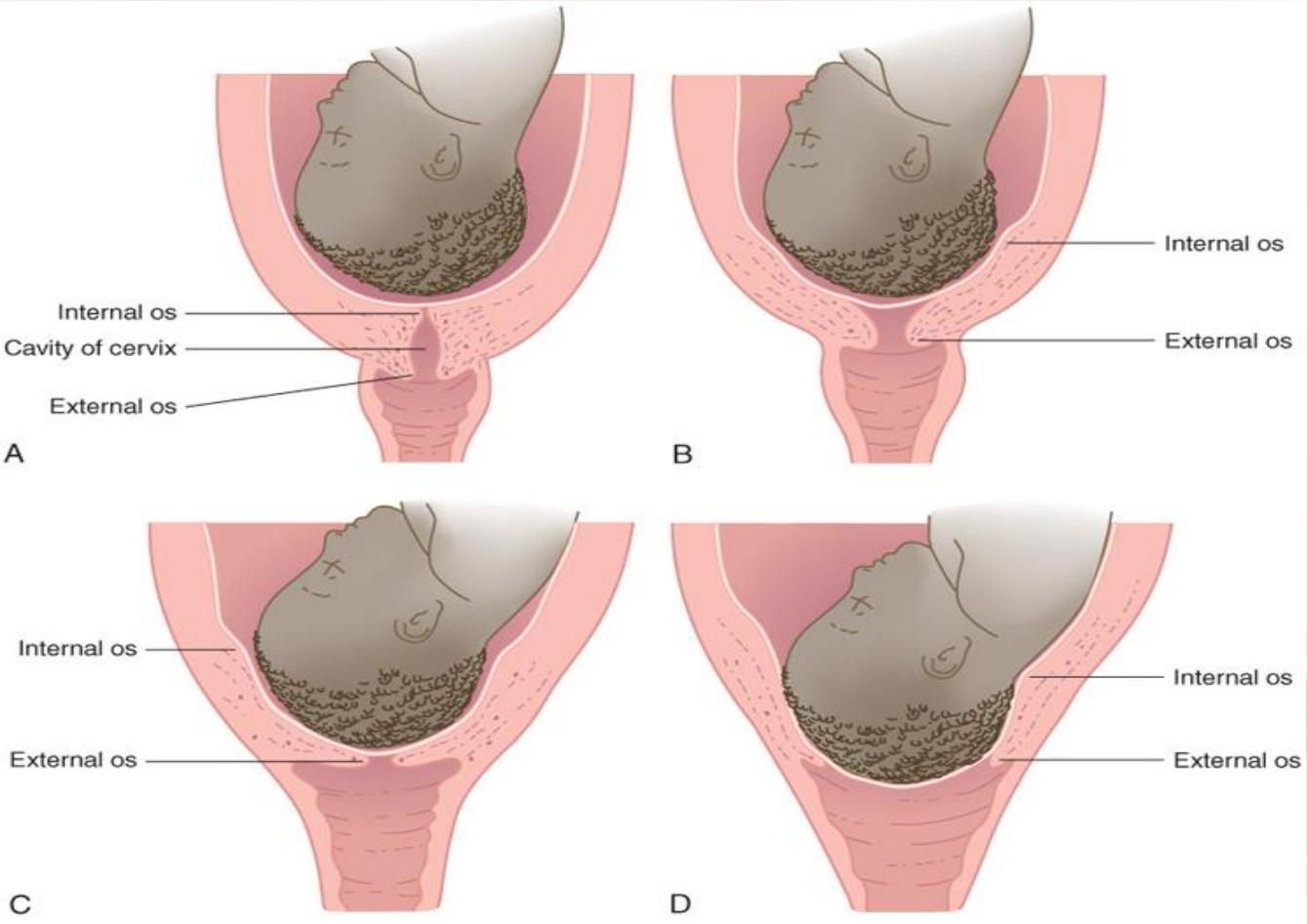
Uterine Contractions

- Frequency
  - elapsed time from the beginning of one contraction to the beginning of the next contraction
- Duration
  - Elapsed time from the beginning to the end of same contraction
  - Persistent contraction lasting longer than 90 sec reduce fetal oxygen supply
  - It is important to have mother relax during contractions
- Intensity
  - Mild
  - Moderate
  - Firm
- Maternal pushing

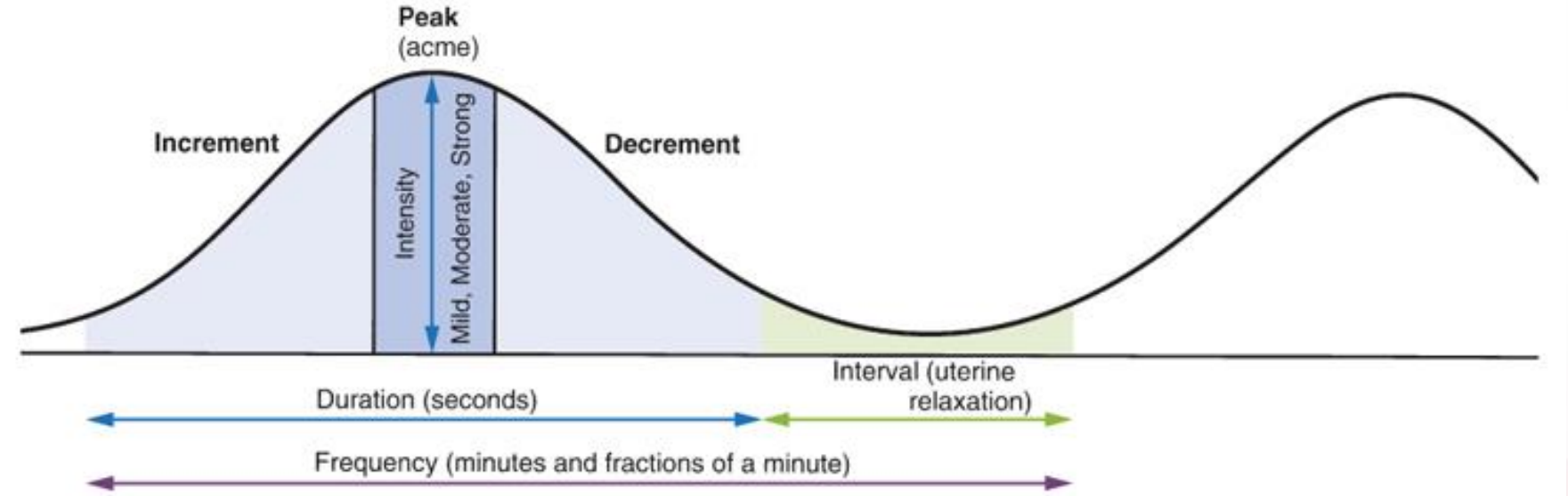
Safety Alert!

- Report to the RN any contractions that occur more frequently than every 2 minutes, last longer than 90 seconds, or have intervals shorter than 60 seconds

Cervical Effacement and Dilation



Contraction Cycle



Nursing Tip

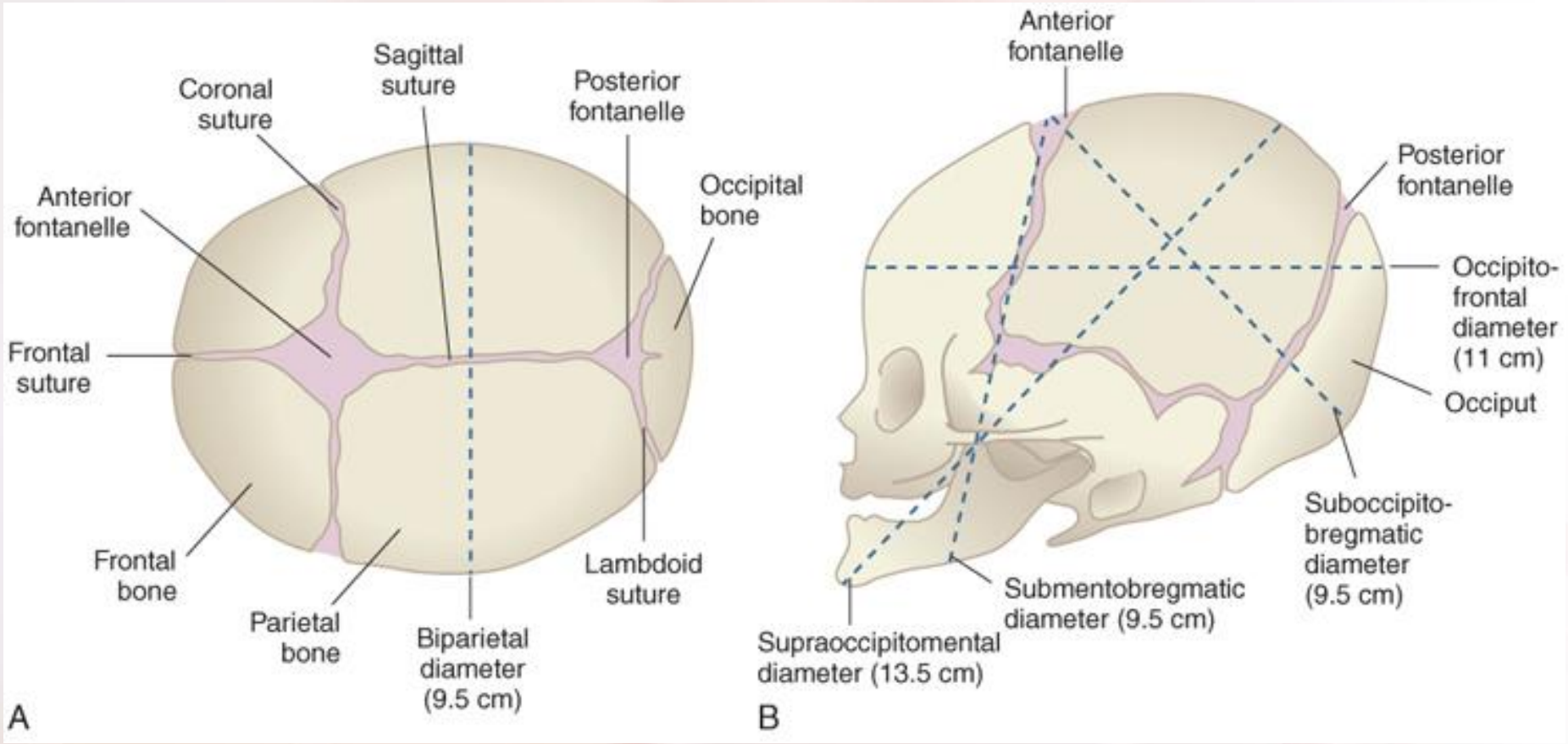
- Provide emotional support to the laboring woman so she is less anxious and fearful.
- Excessive anxiety or fear can cause greater pain, inhibit the progress of labor, and reduce blood flow to the placenta and fetus.

The Passage

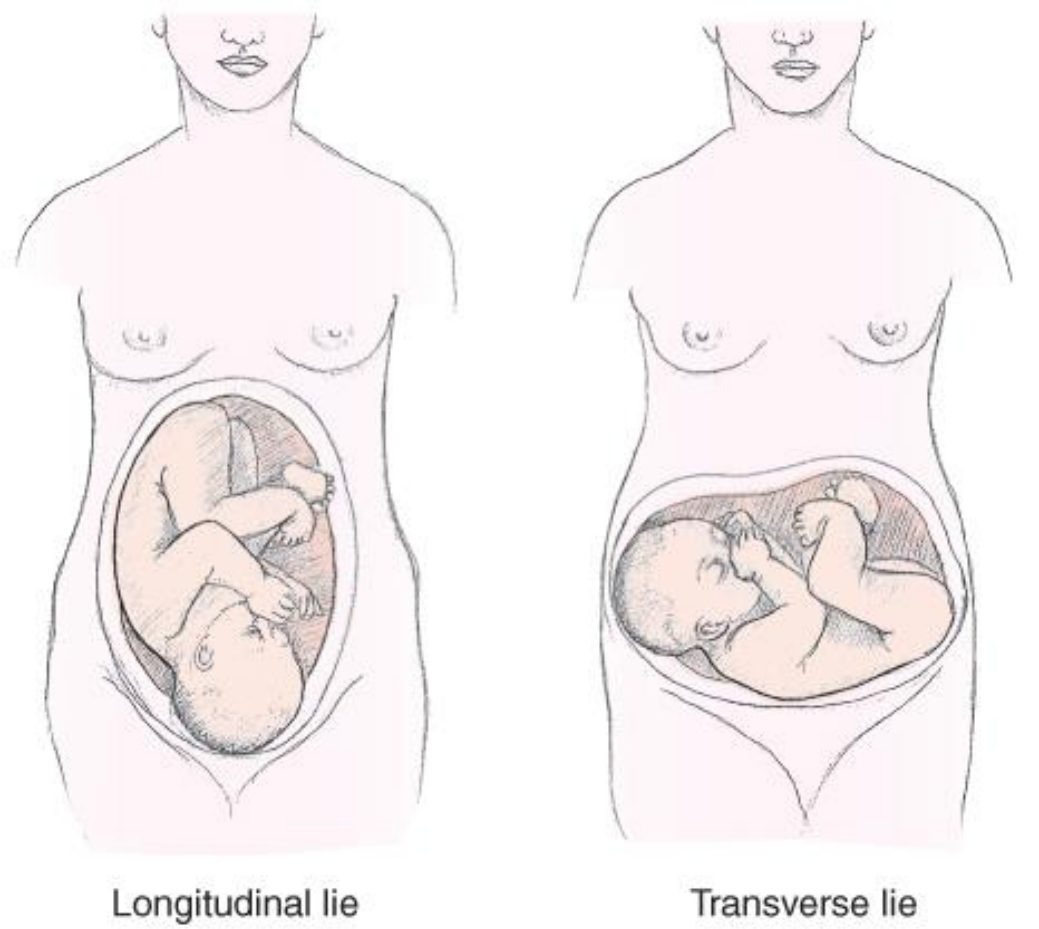
- Bony pelvis
- True
  - Directly involved in childbirth
    - Inlet
    - Midpelvis
    - Outlet
- False
  - Flares
  - Upper portion of pelvis

- Soft tissues
  - If previous delivery, will yield more readily to contractions and pushing efforts
  - May not yield as readily in primiparas or older women

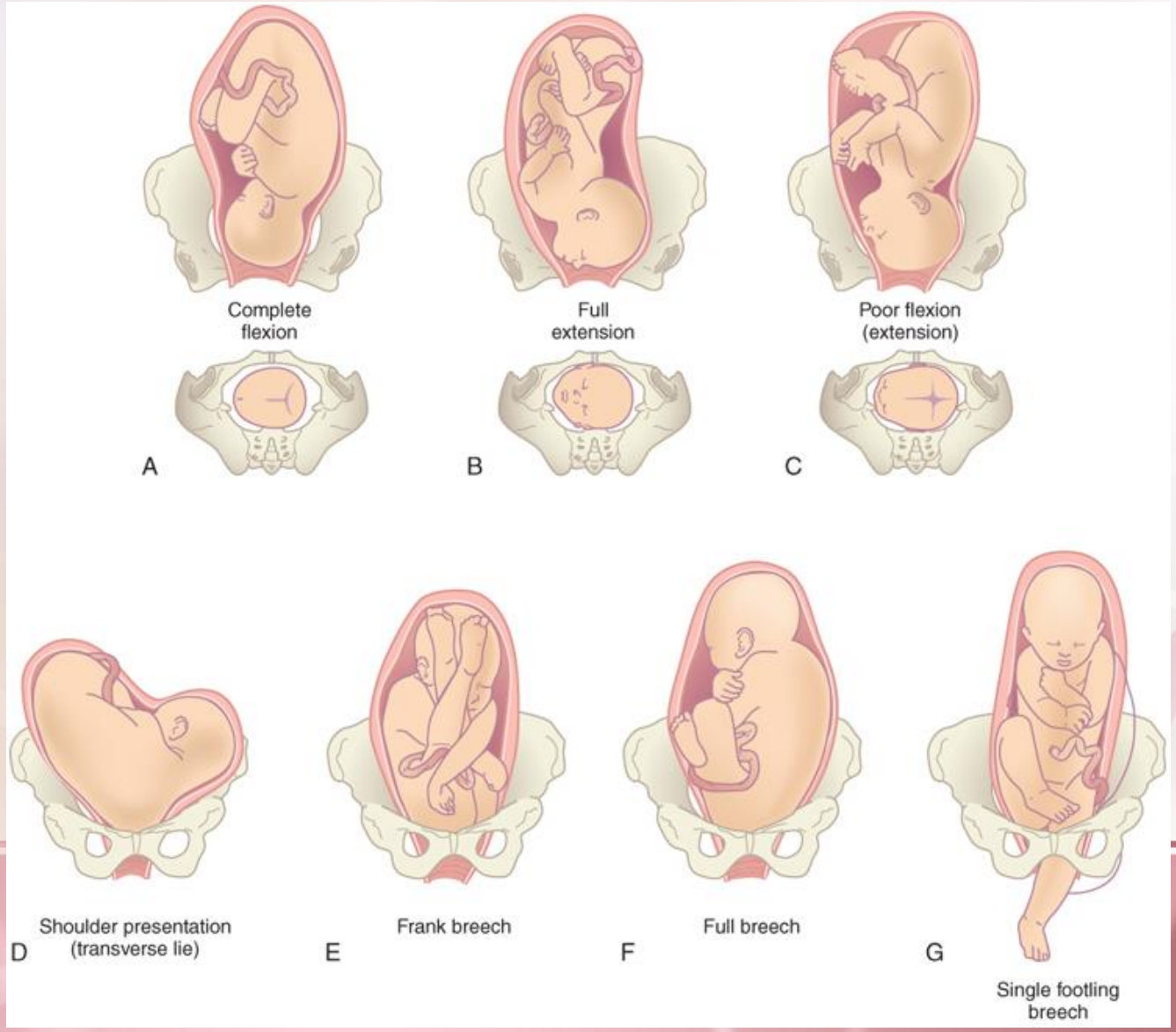
The Passenger—Fetal Skull



The Passengers—Fetal Lie



The Passengers—Presentation



The Passengers—Presentation

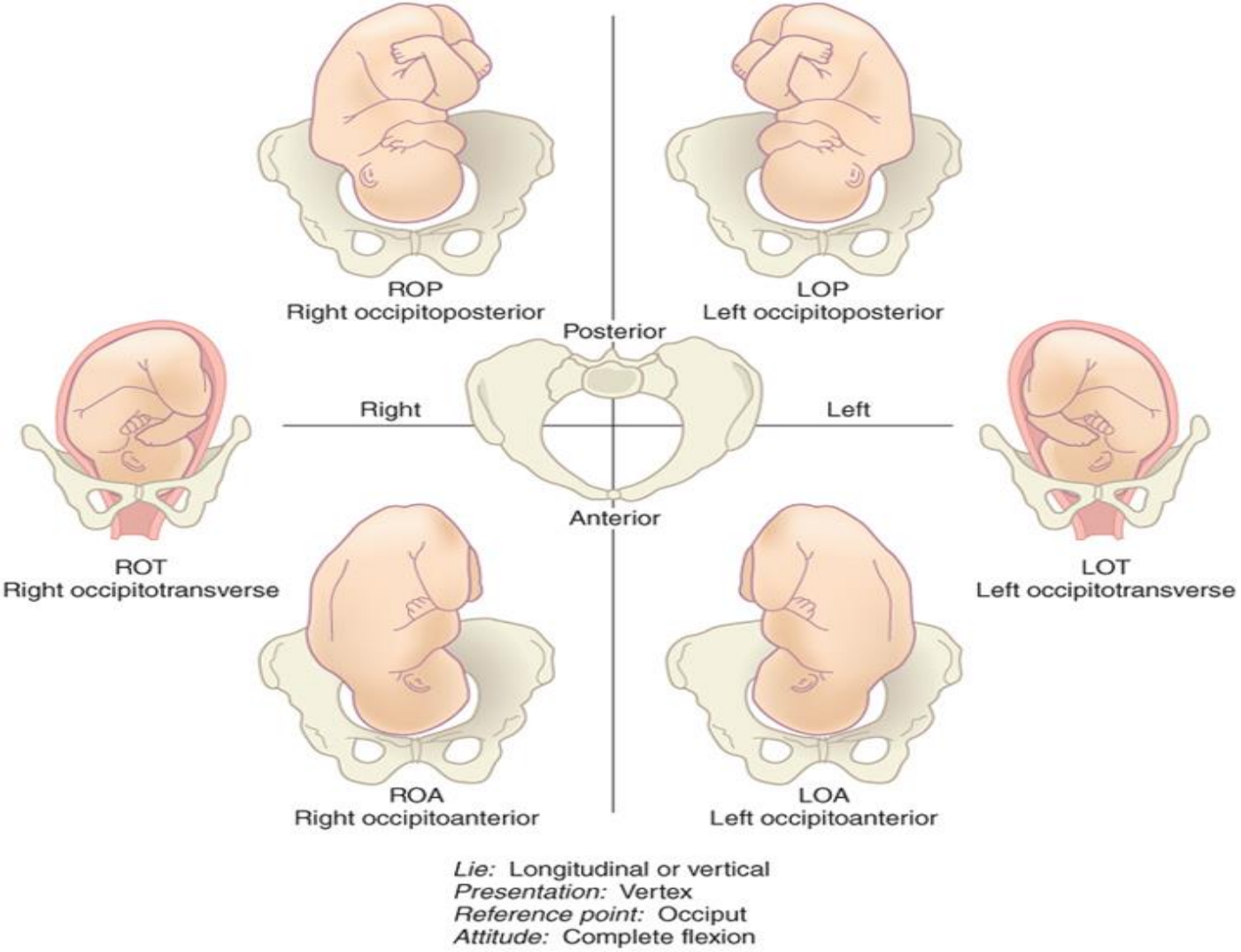
- Fetus
  - Fetal Head-fontanelles (anterior/posterior)
  - Lie-how the fetus is aligned with mother's spine
  - Attitude-normally one of flexion with the head flexed and arms and legs flexed
  - Presentation-the fetal part that enters the pelvis 1st

    -Vertex-head is fully flexed-most favorable
    -Military head is neither flexed or extended
    -Brow head is partly extended
    -Face-head is fully flexed and face is presents
    -Breech-Frank, Full or complete, Footling
  - Position- how a reference point on fetal presenting part within mother's pelvis
    - Occiput-how fetus is in cephalic vertex presentation
    - Sacrum-how fetus is in a breech presentation

Psyche

- Mental state can influence the course of labor.
- The woman's cultural and individual values influence how she will cope with childbirth.

Classifications of Fetal Presentations and Positions



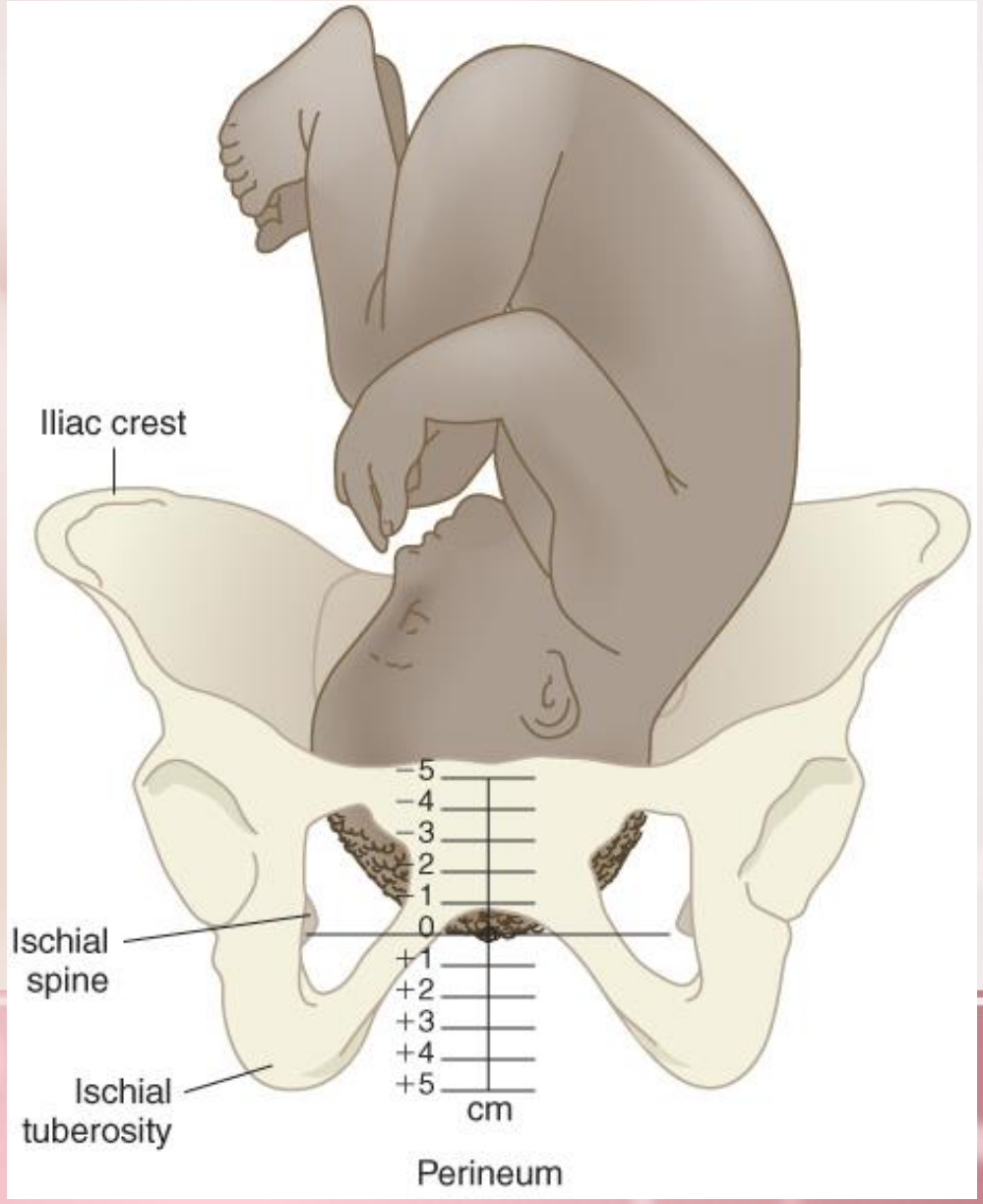
Signs of Impending Labor

- Braxton Hicks contractions
- Increased vaginal discharge
- Bloody show
- Rupture of the membranes
- Energy spurt
- Weight loss

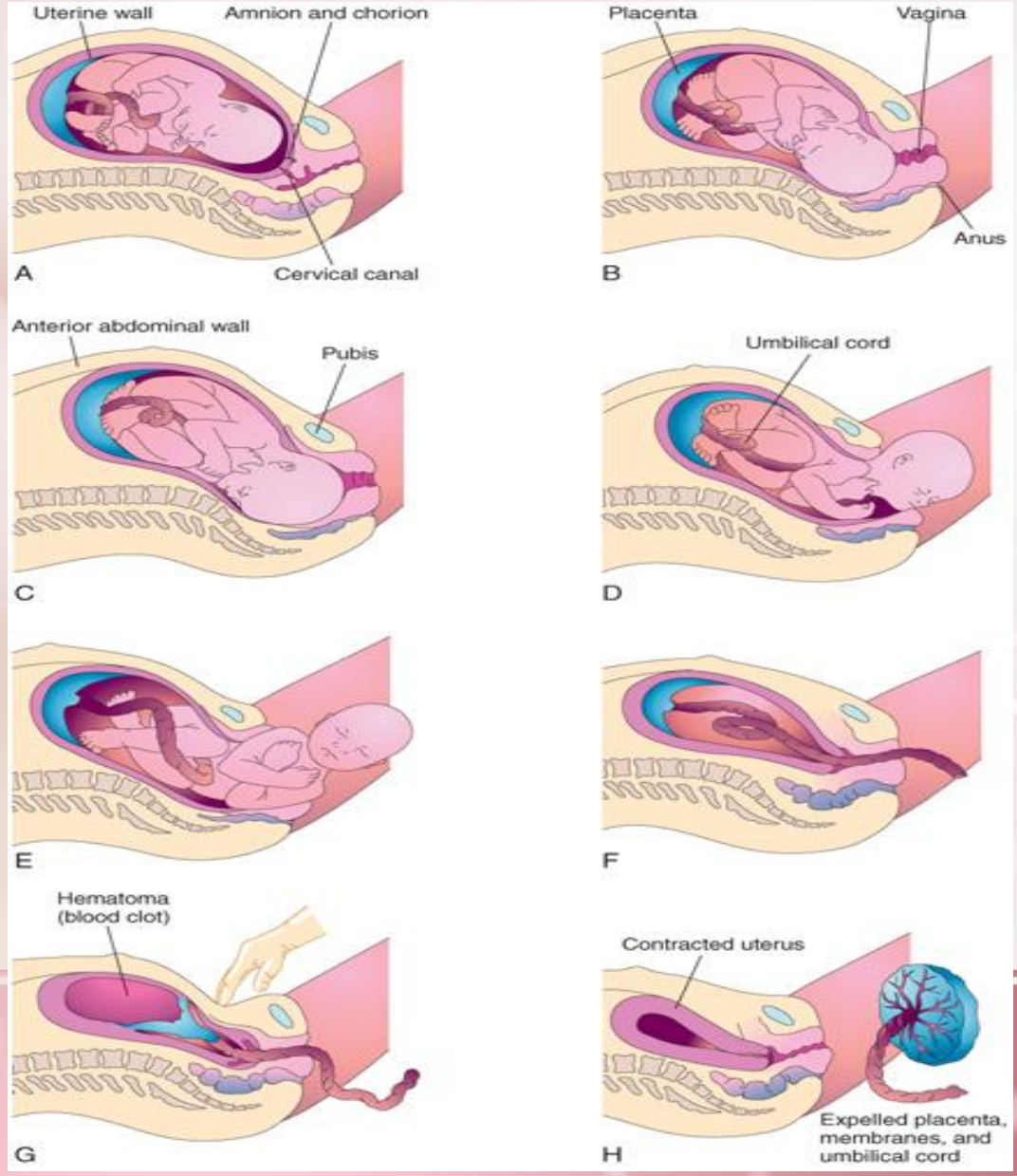
Mechanisms of Labor

- Descent
  - Station-0 station at ischial spines above them minus stages below designated as plus stages; measured in cm
- Engagement
- Flexion
- Internal rotation
- Extension
- External rotation
- Expulsion

Birth Station



Mechanisms of Labor



When to Go to the Hospital or Birth Center

- Contractions
- Ruptured membranes
- Bleeding other than bloody show
- Decreased fetal movement
- Any other concern

Admission Data Collection

- Three major assessments performed promptly on admission
  - Fetal condition-FHR w/fetoscope
  - Maternal condition-V/S
  - Impending birth-observing mother; making grunting noises, bearing down with contractions, stating “The baby is coming.”, Bulging of perineum or fetal presenting part at vaginal opening

Admission Procedures

- Permits/consents
- Laboratory tests
- Intravenous infusion
- Perineal prep
- Determining fetal position and presentation

Comparison of False and True Labor

- False labor
  - Contractions irregular
  - Painless tightening of abdominal muscles
  - Walking relieves contractions
  - Bloody show usually not present
  - No change in effacement/dilation of cervix
- True labor
  - Contractions gradually develop a regular pattern
  - Contractions become stronger and more effective with walking
  - Discomfort in lower back/abdomen
  - Bloody show often present
  - Progressive effacement and dilation of cervix

Nursing Care Before Birth

- After admission to the labor unit, nursing care consists of
  - Monitoring the fetus
  - Monitoring the laboring woman
  - Helping the woman cope with labor

Monitoring the Fetus

- Fetal heart rate
- Intermittent auscultation
- Continuous electronic fetal monitoring

FHR Outside of Normal Limits

- Any FHR outside the normal limits and any slowing of the FHR that persists after the contraction ends is promptly reported to the health care provider.

Evaluating Fetal Heart Rate Patterns

- Baseline FHR
  - 110-160 BPM
- Fetal bradycardia
  - <110 BPM
- Fetal tachycardia
  - >160 BPM
- Baseline variability
- Moderate variability
- Marked variability
- Absent variability

Evaluating Fetal Heart Rate Patterns

- Accelerations-temporary, abrupt rate increases at least 15 bpm above baseline and lasts 15 sec but less than 2 min-suggest well oxygenated fetus
  - Early decelerations-FHR decreases no more than 40 bpm and return after contraction-U shape; compression of fetal head
  - Variable decelerations-FHR decreases 15 bpm last 15 sec to 2 min-V or W shape-suggest umbilical cord compressed-due to be around fetal neck or inadequate amniotic fluid; reposition and monitor if they continue give oxygen
  - Late decelerations-begin after contraction and do not return after contraction; suggest placenta not delivering enough oxygen (uteroplacental insufficiency)-nonreassuring-could indicate fetal hypoxia or fetal heart depresssion; reposition to prevent supine hypotension, administer O_2 8-10 L/min, increase IV fluids; stop oxytocin; administer tocolytic drugs

Evaluating Fetal Heart Rate Patterns

- **Prolonged decelerations**-caused by cord compression or prolapse; maternal supine hypotension; or due to regional anesthesia
- **Recurrent decelerations**-occur more than 50% of uterine contractions
- **Intermittent decelerations**-occur in less than 50% of uterine contractions
- **Sinusoidal pattern**-may happen due to medication provided such as Demoral, or Stadol

Reassuring and Nonreassuring FHR and Uterine Activity Patterns

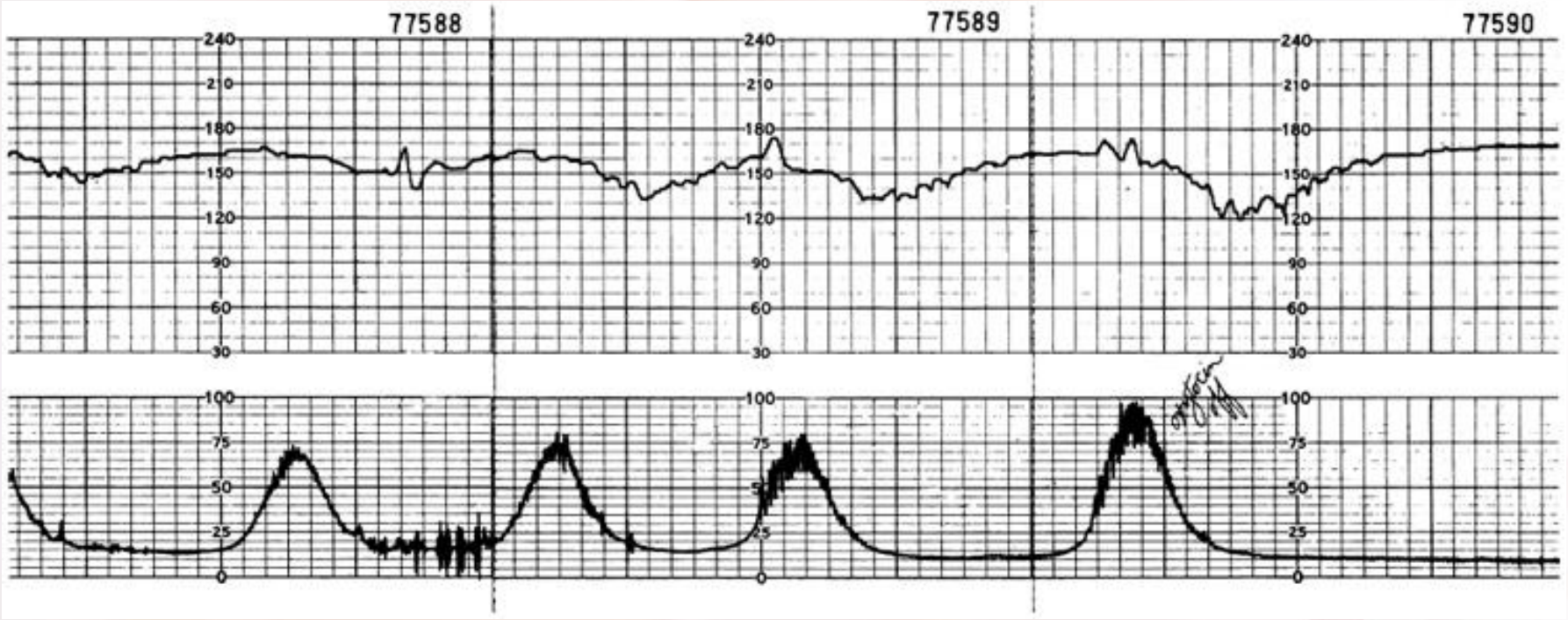
Reassuring patterns

- Stable fetal heart rate (FHR)
- Moderate variability
- Accelerations
- Uterine contraction frequency greater than every 2 minutes; duration less than 90 seconds; relaxation interval of at least 60 seconds

Nonreassuring patterns

- Tachycardia
- Bradycardia
- Decreased or absent variability; little fluctuation in rate
- Late decelerations
- Variable decelerations

Late Decelerations



Inspection of Amniotic Fluid

- Amniotic Membranes-rupture spontaneously or artificially by Dr. by going an amniotomy-Priority-FHR will need to be assessed for at least 1 full minute and record and report. When membranes are ruptured will need to evaluate:
- Color
  - Normal is clear fluid, may have flecks of white vernix
  - Green-stained may indicate fetus passed meconium (first stool but before birth)
    - Can lead to fetal compromise

Inspection of Amniotic Fluid

- Odor
  - Should not smell
    - If it does, it may indicate infection
- Amount
  - Scant—trickle
  - Moderate— ~500 mL
  - Large— ≥ 1,000 mL

Monitoring the Woman

- Vital signs
- Contractions
- Progress of labor
- Intake and output
- Response to labor

Six Lamaze Institute Basic Practices for Maternity Care

- Labor should begin on its own.
- Woman should have freedom of movement.
- Woman should have a birth support person or doula.
- No routine interventions should be performed.
- Woman should be in non-supine positions.
- Woman should not be separated from infant.

Helping the Woman Cope with Labor

- Labor support
- Teaching
  - Positioning and breathing techniques
  - Help to remind mother not to push before cervix fully dilated
  - When cervix is fully dilated then take a deep breath & exhale at beginning of a contraction then take another deep breath and push while exhaling
- Providing encouragement
- Supporting/teaching the partner
  - Teach how labor pains affect the woman's behavior/attitude
  - How to adapt responses to the woman's behavior
  - What to expect in his/her own emotional responses
  - Effects of epidural analgesia

Stages and Phases of Labor

- First stage—dilation and effacement (can last 4 to 6 hours)
  - Latent Phase-Cervix 1-4 cm; cooperative, alert
  - Active Phase-Cervix 4-7 cm; apprehensive, anxious
  - Transition Phase-Cervix 7-10 cm; irritable, rejects support
- Second stage—expulsion of fetus (30 minutes to 2 hours)
- Third stage—expulsion of placenta (5 to 30 minutes)
- Fourth stage—recovery

Vaginal Birth After Cesarean

- Main concern
  - Uterine scar will rupture
- Can disrupt placental blood flow
- Lead to hemorrhage
- Woman may need more support than other laboring women
- Nurse provides empathy and support

Nursing Responsibilities During Birth

- Preparing the delivery instruments and infant equipment
- Perineal scrub
- Administering medications
- Providing initial care to the infant
- Assessing Apgar score
- Assessing infant for obvious abnormalities
- Examining the placenta
- Identifying mother and infant
- Promoting parent-infant bonding

Immediate Postpartum Period: Third and Fourth Stages of Labor

- Third stage—expulsion of placenta
  - Schulze or Duncan's
- Fourth stage—nursing care includes
  - Identifying and preventing hemorrhage
  - Evaluating and intervening for pain
  - Observing bladder function and urine output
  - Evaluating recovery from anesthesia
  - Providing initial care to the newborn infant
  - Promoting bonding and attachment between the infant and family

Nursing Care Immediately After Birth

- Care of the mother
  - Observing for hemorrhage
    - Vital signs
    - Skin color
    - Location and firmness of uterine fundus
    - Lochia
    - Pain
  - Promoting comfort
    - Keep warm and dry
    - Ice to perineum to help reduce swelling and bruising

Nursing Care Immediately After Birth

- Care of the newborn
  - Phase 1
    - From birth to 1 hour (usually in delivery room)
  - Phase 2
    - From 1 to 3 hours (usually in transition nursery or postpartum unit)
  - Phase 3
    - From 2 to 12 hours (usually in postpartum unit if rooming-in with the mother)

Phase 1: Care of the Newborn

- Initial care includes
  - Maintaining thermoregulation
  - Maintaining cardiorespiratory function
  - Observing for urination and/or passage of meconium
  - Identifying the mother, father, and newborn
  - Performing a brief assessment for major anomalies
  - Encouraging bonding/breastfeeding

Care of the Newborn

Apgar Scoring

Scoring is done in the following 5 areas with scoring from 0-2 in each area

- Heart rate
- Respiratory effort
- Muscle tone
- Reflex response to suction or gentle stimulation on the soles of the feet
- Skin color

Administering Medications to the Newborn

- Eye care
- Vitamin K (AquaMEPHYTON)

Observe for Major Anomalies

- Head trauma from delivery
- Symmetry and equality of extremities
  - Are they of equal length?
  - Do they move with same vigor on both sides?
- Assess digits of hands and feet
  - Any evidence of webbing or abnormal number of digits

Umbilical Cord Blood Banking

- This type of blood is capable of regenerating stem cells that are able to replace diseased cells.
- Informed consent is essential.
- Collect blood after cord has been clamped.
- Blood must be transported within 48 hours of collection to blood banking facility.

Emerging Technologies and Practice

- STAN technology: type of waveform analysis that detects intrapartal changes in fetal ST waveforms, indicative of developing fetal metabolic acidosis.
- PERICALM-EFM: computerized interpretation of real-time FHR patterns that provides automatic analysis of fetal heart pattern to compliment clinical judgment as well as permanent documentation in EMR.