Unit IV: Labor & delivery:  
(8) hrs.

**Outlines**

- Theories of labor onset.
- Signs of labor.
- Components of labor.
- Stages of labor.
- Nursing management of each stage of labor.
- Role of the nurse in delivery room.
- Infection and pollution prevention & control in the delivery room.
- Nursing management during complicated labor 
  & delivery.

- Using of pantograph in labor

**Learning Objectives**

**At the end of this chapter, the student should be able to:**

1. Describe the stages of labor.
2. List signs of labor.
3. Distinguish between false & true labor.
4. Examine fetal response to labor.
5. Describe physiology & psychological change occur during labor.
6. Describe potential complication of pregnant & its management.

**Processes and stage of labor and birth**
Labor: is the process of uterine contraction leading to progressive effacement & dilatation of the cervix & birth of the baby.

Premonitory signs of labor

1. **Lightening**: is the descent of the fetus into the pelvis, this may occur as (2 week) before labor begins in the primiparous client but may not occur in multiparous.

2. **Braxton-Hicks Contraction**: are irregular intermittent contraction felt by the pregnant women toward the end of pregnancy, may be come uncomfortable & produce false labor.

3. **Cervical change**: several days before initiation of labor the cervix softens, begins to efface, & dilates slightly.

4. **Blood show**: consist of cervical secretion blood tinged mucus & mucus plugs the cervix during pregnancy.

5. **Rupture of membrane**: rupture of amniotic sac usually occurs after labor begins. Occur in about 12% of women, labor begin from 24 hrs.

Physiology of labor
Possible causes of labor onset:

1. **Progesterone withdrawal hypothesis**: progesterone is produced by the placenta relaxes uterine smooth muscle by interfering with conduction of impulses from one cell to the next. For this reason the uterus is usually without coordinate contraction during pregnancy biochemical change toward the end of gestation result in availability of progesterone to myometrium cells.

2. **Prostaglandin hypothesis**: the amnion & decidua are the focus of research on the source of the prostaglandin once prostaglandin is produce stimuli for its synthesis may include, increase level of estrogen, decreased available of progesterone, increase level of oxytocin or response.

3. **Corticotrophin –releasing hypothesis (C.R.H)**

   Is possible role in labor onset, it increase throughout pregnancy .with a sharp increase at term plasma CRH is also increase before preterm labor & CRH level elevated in multiple gestation.

**Variables affection labor**

A. **Passage way include:-**

1. Pelvis.
2. Uterus.
3. Cervix.
4. Vagina.
5. Perineum.
B. Passenger include:-

1. Size of the fetus.
2. Fetal attitude.
3. Fetal lie.

C. Powers include:-

1. Uterine contraction.
2. Abdominal force.
3. Hydrostatic force.

Stage of labor & Birth

The labor process divided into four stages:

1. **First stage:** Begin with the onset of true labor and end when the cervix completely dilates to 10 cm. The first stage divided into three phases.

a. **Latent phase:** Start from regular contraction as the cervix begins to dilate,
   - It also effaces although little for women in her first labor nullipara the latent phase average 8.6 hrs., but should not exceed 20 hrs.
   - Latent phase in multipara average 5.3 hrs., but should not exceed 14 hrs.
   - Uterine contractions become established during latent phase increase in frequency – duration & intensity.
• Start mild contraction from 20 to 40 min. with frequency of 3 – 30 in the early phase.

b. **Active phase:**

- When the woman enters the early active phase, her anxiety tends to increase as her sense the intensification of contraction & pain.
- She begins to fear a loss of control & may use a variety of coping mechanism.
- During this phase cervix dilate from about 4 cm to 7 cm fetal descent progressive, cervical dilatation average 1.2 cm/hr. in nullipara, 1.5cm/hr. in multipara.

c. **Transition Phase:** when the cervix dilated 8 cm & end when the cervix is dilated 10 cm Contraction occurs every 2 to 3 min. with duration of 60 to 90 second.

**characteristic of the transition phase :**

1. Restlessness
2. Hypoventilation.
3. Irritability.
4. Increase rectal pressure.
5. perspiration on upper lip

**Nursing Care during the first stage**

1. Make the women & her families feel welcome & comfortable.
2. Women antenatal record is reviewed to discover any abnormality.
3. Take good history.
4. Check vital signs.
5. Frequency & length of contraction.
6. Check fetal heart rate every 1/2 hrs. Stage normal rate between 120 to 160 beat/minutes.
7. Rehydration by intravenous root better.
8. Full bladder should be emptied by catheter.
10. Use of Partogram.

2. **The second stage**: begin with complete cervical dilatation (10 cm) & end with the birth of the baby. Contractions continue at frequency of every 1 to 2 min, duration 60 to 90 second & strong intensity.

**Mechanism of Labor**

A. **Descent**: begin with engagement & continue with each contraction throughout the labor process.

B. **Flexion**: the fetal head is bent forward as it meets resistance during descent that causes the chin to rest on the sternum this allow the narrowest part of the head to enter the pelvic outlet.

C. **Internal Rotation**: It takes place mainly during the second stage.

D. **Extension**: as the fetal head continuous to descend, the occiput pivot under the symphysis pubis & the fetal head become extended & pushes upward out of the vagina.
E. **Restitution & external rotation**: the head has emerged it rotate back to be in normal a ligament with the shoulder. Is called restitution fetal position in the uterus can be identified by observing this turning of the head & shoulder rotate anterior posterior position under symphysis pubis.

F. **Expulsion**:

- After external rotation & through the pushing effort of the laboring woman.
- Anterior shoulder meets the under surface of the symphysis pubis & slip under it lateral flexion of the shoulder & head occur the anterior shoulder is born before the posterior shoulder of the baby.

**Nursing Care of the Second Stage Labor**

1. Mother will be on her back.
2. Record & report as before monitor fetal heart rate every five min.
3. Monitor maternal blood pressure.
4. Instruct support person in delivery room as head is descending deep to pelvic floor bulging of perineum.
5. After rupture of the membrane we must do to exclude & prolapsed.
6. Head descent ask patient not push but take deep birth to prevent perineal tear.
7. Delivery in sterile & antiseptic procedure.
8. Episiotomy is done necessary.
9. After delivery of the head, a finger inserted to felt weather a loop of cord is around neck.
10. The mouth & pharynx are sucked clean with mucous extractor, in neonate the cord should not clamp until the child has cried vigorously & pulsation in the cord.

**Differences between True & False labor**

<table>
<thead>
<tr>
<th>True labor</th>
<th>False labor</th>
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<tbody>
<tr>
<td>1. Contraction occurs at regular intervals.</td>
<td>1. Contractions are irregular but may be regular short time (1 to 2 hrs.)</td>
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<td>2. Interval between contractions gradually short.</td>
<td>2. Interval between contractions stays the same.</td>
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<tr>
<td>3. Contraction increase intensity &amp; duration.</td>
<td>3. Contraction &amp; intensity remain the same.</td>
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<td>4. Contraction continue &amp; soften become stronger when the client ambulate.</td>
<td>4. Contraction frequency stop when the client ambulates.</td>
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<td>5. Contractions are usually not stopped with controlled breathing other relaxation, sedation, comfort.</td>
<td>5. Contraction eventually cease with control breath relaxation technique, comfort measure</td>
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<td>6. Cervix softens, effaces &amp; dilated.</td>
<td>6. Cervix may soften but does not efface or dilate.</td>
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<td>7. Contraction felt in lower back &amp; radiated to abdomen.</td>
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3. **The third stage:** begin with the birth baby and end with the expulsion of the placenta.

**Placenta separation:**

- After the infant is born, the uterus contracted firmly decreasing it capacity & the surface area of placental attachment.
- The placenta begins to separate because of this decrease surface area.
- **As separation occurs the following changes take place :-**

1. Bleeding results in the formation of hematoma between the placenta tissue & remaining decidua.
2. This hematoma speed separation process.
3. The membrane is the last separate.
4. Signs of placenta separation usually appear about (5 – 30 min) after birth baby.

**Signs of placenta separation**

1. Globular _shaped uterus.
2. Arise of the fundus in the abdomen.
3. Sudden gush or trickle of blood.
4. Further protrusion of the umbilical cord out of the vagina.

**Nursing Care in third stage of labor**

a. Hand put gently over the fundus.

b. Patient must be put in dorsal position.

c. Blood loss must be measure.

d. Give ergometrin or oxytocin drug.

e. Vagina labia & perineum are inspected for tears or other injuries.

**4. Fourth Stage**

- The first 4 hrs. after the birth of the baby, when the mother body begin physiological readjustment:

a. Blood loss usually between (250 ml & 500 ml).

b. Decrease in the systolic & diastolic blood pressure.

c. Increase in the pulse rate.

**Nursing Care in fourth stage of labor**

1. Observation of the vital signs.

2. Observation of vaginal bleeding.

3. Observation site of incision (episiotomy).

4. For infant, monitoring uterine contraction.

**Admission of client in labor includes:**

**Role of the nurse in delivery room:**
1. Check vital signs.

2. Auscultation of the heart & lung.

3. Check for fetal lie & presentation.

4. Monitor contraction for frequency duration & intensity.

5. Determine cervical effacement & dilation fetal position.

6. Inspection for signs of edema of face, hand & sacrum.

**Infection & pollution prevention & control in the delivery room:**

1. Disposable gloves should be worn any time hands might come in contact with amniotic fluid, blood, urine, or feces.

2. Wear a splash apron & eye covering goggles or face mask.

3. Wash hand before putting on gloves & immediately after removing them.

**Nursing Care during Complication labor & delivery include:**

Fetal & uterine monitoring is of major assessment used to detect deviation from normal birth & labor.

**The national health goals for detect complicated during labor possible are:**

1. Reduce (cs) rate to no more than 15% from base line 24.4%.
2. Reduce maternal mortality rate to no more than (3.3 per 100,000) live birth from base line of (6.6 per 100,000).

**Fetal Attitude:** Is the relationship of fetal body parts to one another.

- The ideal attitude of the fetus term flexion with the head flexed on to the chest the term flexed over the chest & hips & knee flexed on the abdomen.

**Fetal Lie:** the relationship of the cephalocaudal(head to foot) axis of the mother.

- When the fetal cephalocaudal axis is parallel to the mother is called **longitudinal axis**.
- When the fetal cephalocaudal axis at right angle to mother called **transverse lie**.

**Problem with position presentation:**

1. **Cephalic Presentation:** different by the part of the head enter pelvis first may be:

   - **Vertex**, with the occiput as the present part.
   - **Brow**, with the sinciput as the present part.
   - **Face**, with the face as the present part.

2. **Breech Presentation:** different by the attitude of the fetus of leg.

   The various breech presentation are follow :-
- **Complete breech**: hips & knee are flexed on the abdomen in an attitude of flexion with the buttock present part.

- **Frank breech**: the hips are flexed but the knees are extending with the buttock as the present part.

- **Footling presentation**: the hips & knee are extending with the foot present part.

3. **Shoulder Presentation**: occur in transverse lie. The present part usually the shoulder but may be arm, back, abdomen, or side.

**Dystocia**: It is a long difficult or abnormal labor caused by any of the five major variables affects labor & may lead to:

1. Dysfunction labor.
2. Pelvic structure variation.
3. Fetal variation: abnormal presentation.
5. Engagement of the present part station & fetal position.

**Dysfunction of labor**

1. Hypertonic uterine contraction.
2. Hypotonic uterine contraction.
3. Maternal bearing down effort.
**Precipitatelabor:** occur when uterine contraction strong that woman delivery with only few rapidly occurring contraction. It occurs as a result of the following complications

1. Uterine rupture.
2. Laceration of the cervix, vagina & perineum.
3. Post-partum hemorrhage.
4. Loss of coping ability.

**Prolapsed cord:**

Occurs when the loop of umbilical cord slip down in front of present fetal part.

**Causes of prolapse cord**

1. Placenta previa.
2. CPD.
3. Multiplegestations.
5. hydramnious.

**Management of cord prolapse include:**

1. Put hand in vagina & manual elevation of fetal head.
2. Give oxygen by face mask to the mother.
4. If the cervix not fully dilated then c/s is choice for delivery.

Nursing Process for women with Labor

A: Assessment:

- **Subjective data**
  1. Comfort of the mother.
  2. Ability to cope.
  3. Desire to urinate.

- **Objective data**
  1. Vital signs.
  2. Intensity of contraction.
  3. F H R. (fetal heart rate)
  4. Frequency and duration of contractions.

**B: Nursing Diagnosis**

1. Fear and anxiety.
2. Impaired verbal communication.
3. In effective coping.
4. Fatigue.
5. Acute pain.
6. Risk for injury.

C: Planning

Possible goals include:

1. Demonstrate expected progress through labor.
2. Maintain adequate hydration with oral or IV fluid intake.
3. Actively participate in the labor process.

D: Nursing intervention

1. **Physical care which include** :-
   b. Hygiene measure.
   c. Ambulation measure.
   d. Food& fluid measure.

2. **Breathing exercises.**