A. PROBLEMS WITH THE PASSAGEWAY & POWERS

NORMAL LABOR

- Refers to the presence of regular uterine contractions that cause progressive dilatation and effacement of the cervix and fetal descent.
- 95% of women in labor will have 3-5 contractions per 10 minutes.
- Full cervical dilatation is usually achieved 4 hours after 4 cm dilatation.
- Strength of contractions is at least 25mmHg.

	NULLIPAROUS	MULTIPAROUS
2ND STAGE-MEDIAN DURATION	50 minutes	20 minutes
CERVICAL DILATATION	1.2 cm/h	1.5 cm/h

ABNORMAL LABOR

Risk Factors of Abnormal Labor

1. Older maternal age
2. Pregnancy complications
3. Non reassuring FHT
4. Epidural Anesthesia
5. Macrosomia
6. Pelvic contraction
7. Occiput posterior
8. Nulliparity
9. Short stature (less than 150 cm)
10. High station at full dilatation
11. Chorioamnionitis
12. Post term pregnancy

I. OBSTRUCTED LABOR

- In spite of strong contractions, the fetus cannot descend through the pelvis because of the presence of an unsurmountable barrier preventing its descent.
- Can occur anywhere in the pelvis but usually occurs at the pelvic brim.
- Can result in prolonged latent, active or expulsive phase depending on which area of the birth canal the obstruction is present.

CAUSES OF OBSTRUCTED LABOR

a. **CPD** – small pelvis or large fetus
b. **Abnormal presentations** – brow, shoulder, face with chin posterior, after-coming head in breech presentation.
c. **Fetal Abnormalities** – hydrocephalus, locked twins.
d. **Abnormalities of reproductive tract** – pelvic tumor, stenosis of cervix or vagina, tight perineum.

MATERNAL COMPLICATIONS

a. **PROM** – happens when head is arrested at pelvic inlet
b. **Abnormal Dilatation** – cervix dilates slowly or not at all because the fetal head cannot descend.
   – 1st stage is prolonged if obstruction is at the inlet.
   – 2nd stage is prolonged if obstruction is at the outlet.
c. **Danger of Uterine Rupture** – the narrow lower segment of the uterus stretches and becomes dangerously thin due to continuous contractions.
   – Common in multipara (esp. after CS), rare in nullipara.

Signs of Uterine Rupture – shock, abnormal distension / free fluid, abnormal uterine contour, tender abdomen, easily palpable fetal parts, no fetal movements, FHT.

d. **Fistula (openings)** – portions of the bladder, cervix, vagina and rectum are compressed between the fetal head and the pelvic bones when the fetal head is trapped in the pelvis for a long time.
– Excessive pressure on these tissues impair circulation resulting in necrosis and subsequent formation of Fistula.

Types of Fistula: Vesico-vaginal – between bladder and vagina
Vesico-cervical – between bladder and cervix
Recto-vaginal – between rectum and vagina
– most common in nullipara (esp. young age)

e. **Puerperal Sepsis** – likely if membranes have been ruptured
– due to repeated vaginal infections

FETAL COMPLICATIONS

a. **Caput Succedaneum** – swelling of the scalp

b. **Fetal death** – prolonged pressure on fetus, placenta and umbilical cord by uterine contractions results in impaired circulation and anoxia.

SIGNS OF OBSTRUCTED LABOR BY:

a. **Partograph Recording** – alert line to action line

b. **Abdominal Examination** – palpation of widest diameter of fetal head above the pelvic brim.
– frequent long and strong uterine contractions
– continuous uterine contractions
– Bandl's ring which is a late sign of obstructed labor
– failure to hear FHT

c. **Vaginal Examination** – foul smelling meconium draining
– drained amniotic fluid
– edema of vulva (esp. when pushing for a long time)
– cervical edema
– large caput succedaneum can be felt

CAUSE	FINDINGS
False labor	Cervix not dilated No palpable contractions/infrequent contractions
Prolonged latent phase	Cervix not dilated beyond 4 cm after 8 hours of regular contractions
Prolonged active phase	Cervical dilatation to the right of the alert line on the partograph
Cephalopelvic disproportion	Secondary arrest of cervical dilatation and descent of presenting part in presence of good contractions
Obstruction	Secondary arrest of cervical dilatation and descent of presenting part with large caput, edematous cervix, maternal and fetal distress
Inadequate uterine activity	Less than 3 contractions in 10 minutes, each lasting less than 40 seconds
Malpresentation/malposition	Presentation other than vertex with occiput anterior
Prolonged expulsive phase	Cervix fully dilated & woman has urge to push but there is no descent

MANAGEMENT OF OBSTRUCTED LABOR

a. **Rehydrate Patient –** IVF (NSS or LR, g18 cannula) and Monitor I&O

b. **Administer Antibiotics** to prevent or treat infection.

c. **Give Supportive Care to Woman** – back rub, empty bladder, encourage to ambulate, inform on POL

d. **Deliver Fetus:** Dead – CS or craniotomy
CPD – CS
Fully dilated – forceps

II. ABNORMAL LABOR PATTERNS

A. PROLONGED LATENT PHASE

- latent phase starts from onset of regular uterine contractions to onset of active phase (0-3 cm)
- prolonged if exceeds more than 8 hours

CAUSE	MANAGEMENT
Poor cervical dilatation characterized by unripe, rigid, and firm cervix	Active intervention if no change in cervical dilatation after 8 hours of labor. • Amniotomy to rupture intact membranes • Oxytocin stimulation (w/o CPD) • CS if after 8 hrs. induction, cervical dilatation has not progressed more than 4 cm
Excessive sedation and analgesia	Therapeutic rest • Oxytocin stimulation • CS

B. PROLONGED ACTIVE PHASE

- prolonged if more than 12 hours

Management

a. Refer to higher level facility
b. If signs without CPD or obstruction and the contractions are strong:
   - Amniotomy if the membranes are intact
   - Monitor feto-maternal well-being and POL
   - Refer to higher level care if normal progress does not resume
   - Provide support to client in labor by:
     - Rub the back
     - Wipe face with washcloth
     - Encourage breathing techniques
     - Explain procedure and situation
     - Encourage and assist to empty bladder

C. PROTRACTION DISORDER

- slower than normal labor progress
- most common abnormality of labor

Types of Protraction Disorders

	NULLIPAROUS	MULTIPAROUS
Protracted Active Phase	< 1.2 cm/h dilatation	< 1.5 cm/h
Protracted Descent	< 1 cm fetal descent/h	< 2 cm in multipara

Cause

a. CPD and fetal malposition
b. Hypotonic Uterine Contraction

Management

a. Reassess pelvic size, presentation, and position to rule out feto-pelvic disproportion
b. Oxytoxin administration if without CPD
c. Provide support to the mother

D. PROLONGED SECOND STAGE OR PROLONGED EXPULSIVE STAGE

- Occurs when:
  - **Nullipara** - 2 hours without analgesia conduction, 3 hours with conduction
  - **Multipara** - 1 hour without analgesia conduction, 2 hours with conduction
- Needs spontaneous maternal pushing in 2nd stage.

- Excessive pushing and prolonged holding of breath should be discouraged because maternal expulsive efforts exert pressure in the uterus which reduces the delivery of O_2 to the placenta, and consequently decreases O2 supply to the fetus , which can lead to fetal anoxia and death.
- Most prolonged 2nd stage also have prolonged dilatations – >20 hours.
- Analgesia conduction lengthens 2nd stage by 25 minutes.

Cause

a. Persistent occiput posterior position
b. Epidural Anesthesia

Management

a. Delivery can be achieved via Forceps or vacuum extraction
b. If above measures fails or fetal distress occurs, CS

E. ARREST DISORDERS

- Complete cessation of progress
- Active phase disorders characterized by lack of fetal descent and dilatation
- Uterine contractions with normal frequency and intensity but cervix does not dilate and fetus does not descend. →same cause and management as protraction disorders.

  Types

  a. Arrest of Dilatation – absence of progress in cervical dilatation for more than 2 hours in nullipara and 1 hour in multipara.
  b. Arrest of Descent – Absence of progress of fetal descent for more than 2 hours in nullipara and 1 hour in multipara. Most common cause is CPD.
  c. Failure of Descent – Absence of fetal descent in the 2nd stage of labor.

III. DYSTOCIA

- A broad term referring to prolonged labor (any labor that lasts more than 24 hours) caused by an abnormality or a combination of abnormalities in the essential factors of labor.
- Also known as difficult labor, abnormal labor, difficult childbirth, abnormal childbirth, and dysfunctional labor.
- The opposite of Dystocia is Eutocia, which means normal labor.

PROLONGED LABOR IS DUE TO ABNORMALITY IN ANY OF THE THREE (3) "PS":

Powers – poor or uncoordinated uterine action
Passenger – too large fetal head or abnormal position
Passage – abnormal pelvis, tumor

TYPES OF DYSTOCIA

1. **Uterine Dysfunction** – Abnormalities of Powers of labor.
   a. Hypotonic uterine dysfunction
   b. Hypertonic uterine dysfunction
   c. Inadequate secondary forces
2. **Abnormalities of Passageway**
   a. Pelvic dystocia
      - Inlet dystocia
      - Midpelvis dystocia
      - Outlet dystocia
   b. Soft tissue dystocia
      - Placenta previa that partially or completely obstructs the birth canal
      - Presence of tumor that obstructs the birth canal

3. **Fetal Dystocia** – Abnormalities of Passenger
   a. Malposition – Persistent occiput posterior position
   b. Malpresentation – Breech, Face, Brow, Shoulder, Multiple presentation
   c. Macrosomia
   d. Hydrocephalus

DIAGNOSIS OF ABNORMAL LABOR

1. **Laboratory Tests** – no specific.
2. **Imaging Studies** – X-ray pelvimetry and Computerized Tomography (CT) pelvimetry.
   - used to assess maternal bony pelvis
   - cannot detect dystocia caused by soft tissue obstructions in pelvic outlet (obese)
3. **Other Tests**
   a. POL monitoring
   b. FHT assessment – must be reassuring throughout the labor course.
4. **Clinical Pelvimetry** – useful in assessing if the pelvis is adequate, borderline or contracted
   - The bi-ischial diameter is >8 cm
   - The distance to the sacral promontory from the symphysis pubis is >12 cm
   - The relation of the bony pelvis to the fetal head is acceptable

IV. PELVIC DYSTOCIA

- Occurs when there is narrowing in one or more important diameters of the pelvis: inlet, mid pelvis, outlet.
- **Gynecoid and Anthropoid** – good prognosis for vaginal delivery, **Android and Platypeloid** – poor prognosis for vaginal delivery.
- Pelvis is contracted when the diagonal conjugate is <11.5 cm and its bi-ischial diameter is less than 8 cm. CS is the management for pelvic contraction.
- CPD

INLET CONTRACTURE

1. **Inlet Dystocia** is defined as anteroposterior diameter >10 cm, greatest transverse diameter that is > 12 cm, or diagonal conjugate >11.5 cm.
2. Can be due to several conditions including flat pelvis.
3. Lack of engagement between 36^{th} and 38^{th} week of pregnancy in primiparas is an important sign of pelvic contraction.
4. 1 – 2% in term pregnancies.

MIDPELVIS CONTRACTURE

1. Most common pelvic dystocia. Occurs when the sum of the interspinous and posterior sagittal diameters of the mid pelvis is <13.5 cm.
2. Fetus is able to engage, but due to the narrowed diameter of the mid pelvis, the fetal head is prevented from rotating internally from transverse to AP diameter.

OUTLET CONTRACTURE

Outlet Dystocia occurs when the bi-ischial diameter (distance between ischial tuberosities) is < 11 cm.

V. SHOULDER DYSTOCIA

- After delivery of head, the anterior shoulder is trapped and arrested behind the symphysis pubis.
- Usually happens when baby is too large and pelvis is too small.
- Occurs with equal frequency in primi and multigravida.
- Diagnosed only during delivery.

RISK FACTORS

MATERNAL	FETAL
a. Gestational Diabetes b. Post-dates pregnancy c. Multiparity d. Abnormal pelvic anatomy e. Previous pelvic dystocia f. Short stature	a. Assisted vaginal delivery (forceps or vacuum) b. Protracted active phase of first stage of labor c. Protracted second stage labor

COMPLICATIONS

MATERNAL	FETAL
a. Postpartum hemorrhage b. Recto-vaginal fistula c. 3rd or 4th degree episiotomy / tear d. Uterine rupture	a. Clavicle fracture b. Fetal death c. Fetal hypoxia, with or without permanent neurologic damage d. Fracture of the humerus

MANAGEMENT

1. **Turtle Sign:** shoulder dystocia becomes obvious when the fetal head emerges and then retracts against the perineum.
2. When dystocia is diagnosed, AVOID the following actions which can only cause injury to the mother and the infant:
   - Applying excessive pressure to the fetal head or neck
   - Applying fundal pressure
3. The **H-E-L-P-E-R-R** mnemonic provides a step by step guide for preliminary management for dystocia before more drastic measures are implemented.

   It is designed to achieve one of these three objectives that will help to free the shoulder from its impaction under the symphysis:
   - Increase functional size of the bony pelvis
   - Decrease bisacromial diameter (breadth of the shoulders) of the fetus
   - Change relationship of the bisacromial diameter within the bony pelvis through internal rotation maneuvers.

   H – Call for **HELP** – additional personnel and equipment to aid in delivery.

   E – **EPISIOTOMY** – provide additional room for physician's hand when internal maneuver is required.

   L – **LEGS** (**Mc Roberts maneuver**) – done by flexing the legs of the parturient sharply over the abdomen.

   P – Suprapubic **PRESSURE** – place hand suprapubically over the anterior shoulder.

   – Apply pressure in a compression / relaxation cycle (same with CPR). This action can make the shoulder adduct and slip under symphysis.

   E – **ENTER** Maneuvers (**Internal Rotation**) – Rotates the anterior shoulder into an oblique plane under the maternal symphysis to dislodge it from impaction.

   R – **REMOVE** the posterior arm – when the rotation maneuvers are successful, the next step is to remove the infant's posterior arm to give more space in the pelvis.

   R – **ROLL** the patient (**Gaskin maneuver**) – roll patient onto her hand and knees or the "ALL FOURS" position to increase pelvic diameter (via X ray)
4. If HELPERR maneuvers are unsuccessful:
   a. Deliberate clavicle fracture – reduce shoulder-to-shoulder distance.
   b. Zavanelli maneuver – cephalic replacement followed by CS

c. General anesthesia – effect general musculoskeletal or uterine relaxation that reduce tissue resistance in the birth canal, enlarge space, and dislodge impacted shoulder.
d. Symphysiotomy – symphysis pubis is surgically cut under local anesthesia.

5. Nursing Care
   a. Explain the procedure
   b. Assess for cord prolapse
   c. Monitor for nucchial cord, cut and clamp two ends if present
   d. Suction infant's oropharynx after delivery of the head.
   e. Monitor FHT and maternal VS.

VI. UTERINE DYSFUNCTION

May be caused by any or a combination of the following conditions:

- Pelvic contraction
- Fetal malposition
- Over distention
- Excessive rigidity of the cervix

TYPES OF UTERINE DYSFUNCTION

1. **Hypotonic Uterine Contraction**
   - Occurs during active phase
   - Characterized by:
     - weak and infrequent contractions which are insufficient to dilate the cervix
     - uterus is easily indented at the peak of contraction because the strength does not rise beyond 25 mm Hg
     - contractions are not painful because of their poor intensity
   - Contractions may have already been weak and ineffective at the start of labor (**Primary Uterine Inertia**), or labor may have started with good contractions that become weak and infrequent or stopped altogether when active phase is reached.

   Causes
   a. Too early administration of analgesia, before 3-4 cm dilatation.
   b. Over-distention of the uterus caused by multiple pregnancy, hydramnios, large fetus
   c. Bladder and bowel distention that prevents fetal descent.
   d. Mal-presentation and malposition.
   e. Pelvic bone contraction.
   f. Unripe or rigid cervix.
   g. Congenital abnormalities of the uterus.
   h. Unknown causes.

   Complications
   a. Maternal and fetal infections – because cervix is dilated for a long time.
   b. Postpartum hemorrhage – because of prolonged labor making the uterus too exhausted to contract effectively in the postpartum period.
   c. Fetal distress and death
   d. Maternal Exhaustion

   Management
   a. Reevaluate pelvic size to rule out feto-pelvic disproportion
   b. Vaginal delivery:
      - Amniotomy if membranes are not yet ruptured
      - Augmentation of labor by oxytocin administration
   c. If contracted pelvis is present, caesarian section is the method of delivery
   d. Provide supportive nursing care
   e. Monitor for postpartum hemorrhage

2. **Hypertonic Uterine Contraction**

- Encountered in the latent phase of labor.
- Characterized by uncoordinated, too frequent contractions that tend to be more painful. The uterus does not relax completely between contractions.
- Excessive pain is caused by hypoxia of the uterine tissue from inadequate relaxation in between contractions.

Management

a. Evaluation of pelvic size. If adequate, attempt vaginal delivery.
b. Therapeutic rest:
   - Analgesia (Morphine) and sedatives (Phenobarbital) to promote rest.
   - Provide environment conducive to rest.
c. Maintenance of fluid and electrolyte balance by IV fluid infusion.
d. Keep bladder empty to provide more space for the passage of fetus.
e. Encourage side lying position to maximize blood flow to the placenta and fetus.
f. Monitor fetal condition.

VII. PRECIPITATE LABOR AND DELIVERY

- Occurs within 3 hours from onset of contraction to delivery of baby.
- Occurs without warning.

CLASSIFICATION

1. **Precipitate Dilatation** – cervical dilatation is progressing at 5 cm or more per hour in nulliparas, 10 cm or more per hour in multiparas.
2. **Precipitate Descent** – fetal descent is progressing at 5 cm or more per hour in nulliparas, 10 cm or more per hour in multiparas.

PREDISPOSING FACTORS

1. Multiparity
2. Large pelvis
3. Lax unresisting maternal tissue
4. Small baby in good position
5. Induction of labor: amniotomy and oxytocin administration
6. Absence of painful sensation causing the woman to be unaware that vigorous labor is occurring.

COMPLICATIONS

MATERNAL	FETAL
- Laceration of birth canal & uterine rupture. - Premature separation of placenta - Postpartum hemorrhage - Amniotic fluid embolism	- Hypoxia - Subdural hemorrhage due to sudden change of intracranial pressure. - Erb-Duchene palsy - Injuries (fall)

SIGNS AND SYMPTOMS

1. Similar to women with normal labor pattern but appears suddenly without warning.
2. Patient complains of sudden intense urge to push.
3. Sudden increase in bloody show.
4. Sudden bulging of the perineum.
5. Sudden crowning of the presenting part.

MANAGEMENT

1. Anticipatory guidance for prevention.
   a. Adequate prenatal care for early detection of risk conditions.
   b. Inform multiparous women that succeeding labors are usually shorter.
   c. Warn women with history of precipitate labor and delivery may happen again.

2. If accelerated labor pattern occurs during Oxytocin administration, stop infusion right away and turn woman on her side.
3. Call for help. Do not leave patient alone.
4. Obtain sterile delivery pack, sterile gloves, bulb syringe, cord clamp, scissors, baby blanket.
5. Instruct / coach the mother.
6. Never hold or push baby's head back – can result in fetal brain damage.
7. Ask woman to pant and not to push when head is already crowning to prevent rapid expulsion.

VIII. UTERINE RUPTURE

– Tearing of uterine muscles occurs when the uterus can no longer withstand the strain.
– Rare but often a fatal complication of labor.

CAUSES

1. Rupture of scar from previous CS.
2. Prolonged labor, obstructed labor, malposition and malpresentation.
3. Over distention of the uterus from multiple gestation or hydramnios.
4. Injudicious use of oxytocin, forceps and vacuum extraction.
5. Precipitate labor and delivery.
6. Manual removal of the placenta.
7. External trauma – sharp or blunt.
8. Placenta Increta or Acreta
9. Gestational trophoblastic neoplasia.

SIGNS AND SYMPTOMS

1. Impending uterine rupture – pathologic retraction ring.
2. During the peak of contraction, the woman complains of a sudden sharp tearing pain, then felt relieved as the uterus loses the capacity to contract or contractions are too weak.

TYPES OF UTERINE RUPTURE

1. Complete Rupture
   a. Woman experiences a sudden excruciating pain at the peak of a contraction, and then contractions stop altogether.
   b. Two swellings will be visible in the abdomen: the uterus and the extra-uterine fetus.
   c. Internal hemorrhage soon follows and vaginal bleeding may or may not occur because blood from torn uterine vessels pools in the peritoneal cavity. Placental separation results in fetal hypoxia/death

2. Incomplete Rupture
   a. Localized tenderness and persistent pain over the abdomen.
      - Contractions may still continue or stop but no progress in cervical dilatation will be observed.
      - Vaginal bleeding may or may not occur because blood pools in the peritoneal cavity.
   b. As blood supply to the fetus is cut off, fetal distress occurs and FHT soon becomes absent.
      - A sign of maternal shock occurs as manifested by rapid and thread pulse, hypotension, air hunger, and cold clammy skin.

MANAGEMENT

1. Blood transfusion and IVF administration to correct shock.
2. O_2 therapy (mask) at 8L/m.
3. Prepare client for emergency laparotomy.
4. Provide emotional support.
5. For ruptured upper segment – BTL. For extensive damage, hysterectomy is performed.
6. Post op care – no extensive physical activity for 6-8 weeks.

IX. BANDL'S RING

PHYSIOLOGIC RETRACTION RING	PATHOLOGIC RETRACTION RING
During labor, the uterus differentiates into two parts: • Upper contracting portion that becomes thicker and shorter as labor progresses. • Lower passive portion that distends gradually to accommodate the descending fetus.	• When labor is obstructed, as what happens in contracted pelvis, malposition, or hydrocephalus, the fetus cannot descend into the birth canal. • Uterine contractions become stronger and more frequent in an effort to overcome the obstruction until it reaches a state of tonic contraction when the uterus no longer relaxes.
BANDL'S (PATHOLOGIC RETRACTION) RING	
A horizontal indention running across the abdomen or division of the two uterine segments that become very prominent which was caused by the continuous retraction of the upper segment and the over distention of the lower uterine segment.	

MANAGEMENT

1. Administration of IV Morphine Sulfate or inhalation of Amyl Nitrate may be given to relax the uterus and relieve pathologic retraction ring.
2. If above management is ineffective, perform CS to prevent uterine rupture.
3. If Bandl's ring develops during placental stage – anesthesia and manual extraction of placenta.

X. INADEQUATE VOLUNTARY EXPULSIVE FORCES

– Bearing down efforts of the mother is not adequate to generate sufficient intra-abdominal pressure to propel the fetus.

CAUSES

1. Paralysis of abdominal musculature.
2. Excessive use of analgesia and general anesthesia.
3. Fear of intense pain.

MANAGEMENT

1. ***Fear of intense pain*** – analgesia, forceps delivery when the head is already crowning.
2. ***Analgesia*** – wait for analgesia effect to wear off, then coach woman to bear down effectively, forceps delivery when the head is already crowning.

XI. UTERINE INVERSION

– Uterus is partly or completely turned inside out.
– Serious complication of 3rd or 4th stage of labor.

CAUSES

1. Pulling of the umbilical cord or applying pressure on uncontracted uterus.
2. Uterine relaxation due to the effects of anesthesia or analgesia.
3. Sudden increase in intra-abdominal pressure (coughing, sneezing, straining).
4. Placenta acreta.

SIGNS AND SYMPTOMS

1. Fundus is no longer palpable in the abdomen.
2. Sudden gush of blood from the vagina that can result in shock and death.
3. Uterus appears in the vulva.

MANAGEMENT

1. Prevention
   a. Never apply pressure on uncontracted uterus.
   b. Never pull cord to hasten placental delivery.
2. If placenta has already separated, the uterus is replaced manually in the uterine cavity then oxytocin is administered to promote contraction
3. If the placenta is still attached
   a. Do not attempt to remove, doing so will only enlarge the bleeding area.
   b. Do not administer oxytocin before the uterus is replaced, it will be more tense and difficult to replace.
   c. Woman is placed under anesthesia or given tocolytic to cause muscular relaxation and facilitate reinsertion of the uterus into the pelvic cavity. Administer oxytocin.
   d. The placenta is delivered when uterus is already replaced and contracting.
4. O2 therapy. Be prepared for CPR.
5. Administer IVF to combat shock.
6. Prepare / administer blood transfusion per doctor's order.
7. Monitor vital signs.