

## **Maternity and Neonatology**

### **Determining the estimated date of delivery**

- Use the Naegele rule—take first day of last menstrual period (LMP), add 7 days and subtract 3 months from it
  - For instance, if the last menstrual period of a pt was between June 10 and 15
  - The estimated date of delivery = March 17

### **Weight gained during pregnancy**

- 1st trimester (12 weeks)
  - 1 lb per month = Total of 3 lbs
- 2nd and 3rd trimesters
  - Add 1 lb every week
- The ideal weight gained during pregnancy
  - **28 lbs**, plus or minus 3
  - Between 25 to 31 lbs

If weight gained during pregnancy is within

- $\pm 1$  to 2 lbs of the ideal weight for the gestational week ... Pt is WNL

If weight gained is within

- $\pm 3$  lbs ... Assess her
- $\pm 4$  lbs or more... There is trouble
  - perform a BPP on the fetus

### **Alternative method**

A quick and dirty way to come up with the ideal weight gained during pregnancy is to

- Take the number of weeks gestation minus 9

### **Question**

A woman is in her 28th week gestation. She gained 22 lbs, what is your impression?

- Using the long method
  - First trimester (12 weeks) ... She gained 3 lbs
  - 28 weeks minus 12 weeks = 16 weeks
  - Therefore, she would add an extra 16 lbs on her weight
  - $3 + 16 = 19$  lbs ... She has 3 lbs extra than her ideal weight
  - Therefore, assess the pt
- Alternatively, subtract 9 from the number of weeks gestation
  - $28 - 9 = 19$  lbs

### **Question**

A pregnant woman at 31 weeks gestation gained 15 lbs. what is your impression?

- Using the short method, this pt ideal weight should be
  - $31 - 9 = 22$  lbs
  - However,  $22 - 15 = 7$  lbs less than the ideal
  - Therefore, the nurse needs to assess the biophysical profile (BPP) on the fetus

## **Fundal Height**

- Fundal height cannot be palpated until week 12
  - That when the fundus is midway between the umbilicus and the pubic symphysis
- The fundus can be palpated at the umbilicus between 20 and 22 weeks

What is the significance of being able to palpable fundal height?

- The examiner should be able to determine in what trimester the pregnancy is
  - In case pt is unconscious, for instance
  - It has diagnostic significance as well ... A much bigger than normal fundus may indicate molar pregnancy

## **Positive Signs of Pregnancy**

The Boards test positive signs and everything else

1. Fetal skeleton on x-ray
2. Presence of fetus on ultrasound
3. Auscultation of fetal heart (Doppler)
4. Examiner palpates fetal movement (outline)
  - Not the mother but the examiner

## **Ranges of Values**

In OB, there are 3 types of questions regarding range of values

For instance, the fetal HR can be heard first between 8 to 12 weeks gestation

Quickening (baby Qicks) may be first felt between 16 to 20 weeks gestation

Therefore, if the question ask

- **When would you first?**
  - Fetal Heart: 8 weeks
  - Quickening: 16 weeks
  - This is the earliest date
- **When would you most likely?**
  - Fetal Heart: 10 weeks
  - Quickening: 18 weeks
  - This is the date midway in the range
- **When should you \_\_\_\_\_ by?**
  - Fetal Heart: 12 weeks
  - Quickening: 20 weeks
  - This is the latest date

## **Maybe Signs of Pregnancy**

1. Positive urine/blood hCG tests
    - A positive pregnancy test may result from other conditions
    - For instance, cancer
  2. Chadwick sign—cervical color change to cyanosis (Cs)
    - Bluish discoloration of the vulva, vagina and cervix
- Goodell sign—good and soft
- Softening of the cervix
- Hegar sign—uterine softening

- Softening of lower uterine segment

Chadwick → Goodells → Hegar

- All 3 signs are in alphabetical order and
- Move up from the vulva, vagina, cervix to the uterus

### Patient Teaching for Prenatal Visit

During pregnancy, pt is advised to go for prenatal visits as follows

- Once a Month until week 28
- Every other week between 28 and 36
- Once a week after week 36 until delivery or week 42, whichever comes first
  - At week 42, delivery can be induced or by C-section

### Question

If a woman comes in for her 12th week prenatal checkup, when is her next prenatal visit?

- Her next visit is at 16 weeks

### Lab Values

Hemoglobin (Hb) level will fall during pregnancy

- Normally Hb in female = 12 – 16
- A pregnant woman can **tolerate lower levels of Hb**
- First Trimester: Hb can fall to **11** and be perfectly normal
- Second Trimester: Hb can fall to **10.5** and be perfectly normal
- Third Trimester: Hb can fall to **10** and be perfectly normal

#### UWorld

Hemoglobin (Hb)

- 1st & 3rd trimester
  - 11 g/dL
- 2nd trimester
  - 10.5 g/dL
- If Hb <9, anemia evaluation

### Question

How do you treat morning sickness?

- Morning sickness is usually seen during the 1st trimester
- Treatment: Dry carbohydrates—**not before breakfast but**—before pt gets out of bed

### Question

How do you deal with urinary incontinence?

- Urinary incontinence is seen in the 1st and 3rd trimesters
- Pt needs to void **every 2 hours** from the day she gets pregnant until 6 weeks postpartum

### Question

A pregnant pt complains of difficulty breathing. What should you advise her to do?

- Difficulty breathing is a problem during the 2nd and 3rd trimesters
- Advise pt to assume to **tripod position**
  - Tripod position is a physical stance often assumed by people experiencing respiratory distress
  - The pt will be leaning forward with hands on knees or the surface of a desk or table

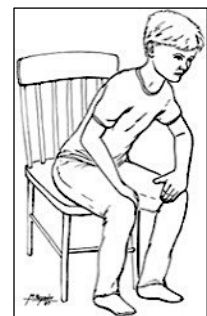


Figure 7.  
Tripoding.

## Question

A pregnant pt complains of back pain. What should you advise her to do?

- Back Pain is seen during the 2nd and 3rd trimester
- Advise pelvic tilt exercises to pt

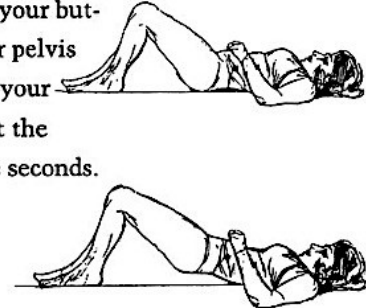
## Labor and Birth

What is the truest most valid sign that she is in labor?

- The truest most valid sign of labor is the **onset of regular/progressive contractions**

### Pelvic Tilt

Lie on your back with knees bent and feet flat on the floor. Tighten your buttocks and roll your pelvis up so as to flatten your upper back against the floor. Hold for five seconds. Relax and repeat.

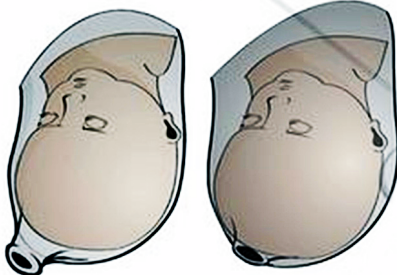


## To Know

- **Dilation** is opening cervix from 0 to 10 cm
- **Effacement** is thinning of the cervix. It goes from thick to 100% efface (thin like paper)
- **Station** is the relation between fetal presenting part and the mother's ischial spines (**know this**)—the narrowest part of the pelvis
  - Positive numbers mean the baby has made it through this tight squeeze—good to go
  - **Positive numbers = Positive news**
  - If a baby stays at a -3, -2, -1, it can't get through vaginally. It needs C-section for delivery
- **Engagement** is station zero—this means the presenting part is at the ischial spines

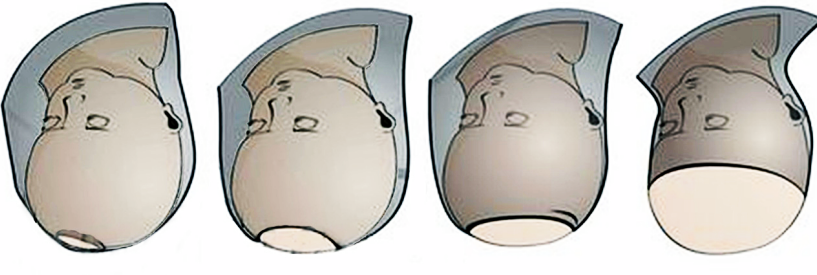
### Effacement

Cervix thins from 0-100%




### Dilation

Cervix opens from 0-10 centimeters



### Station

Level of baby's head compared to the pelvis



### Hormones at Work

<b>Estrogen</b>	Increasing levels make the uterus more sensitive to oxytocin.
<b>Oxytocin</b>	Signals the uterus to contract. Also known as "the love hormone" as it plays a role in bonding and is released during sexual activity.
<b>Prostaglandins</b>	Causes the cervix to soften or "ripen," allowing it to stretch open.
<b>Relaxin</b>	Relaxes the cervix, ligaments and connective tissues and allows greater flexibility of joints, allowing baby to more easily pass through the pelvis.

**Lie** is relationship between the spine of the mother and spine of the baby

- You want a **vertical lie**—compatible with vaginal birth
  - If the mother's spine and the baby's spine is parallel—we got a baby
- If lie is perpendicular—**transverse lie** = Trouble ... C-section
  - If we got them perpendicular, we've got **trouble**—T

**Most common presentation is ROA or LOA**—that's the guess—don't bother memorizing

- ROA (right occiput anterior)
- LOA (left occiput anterior)
- Pick ROA before LOA

**Note**

Before giving digitalis,  
always take an apical HR  
(heart rate)

**Delivery of the Fetus and the Placenta**

- There are 4 stages of labor

**Stage 1 Onset of Labor**—It has 3 phases

- **Latent**—cervical dilation from **0 to 4 cm**
  - Phase 1
  - Contractions are **5 to 30 minutes** apart, lasting **15 to 30 seconds**
  - Mild intensity
- **Active**—cervical dilation from **5 to 7 cm**
  - Phase 2
  - Contractions are **3 to 5 minutes** apart, lasting **30 to 60 seconds**
  - Moderate intensity
- **Transition**—cervical dilation from **8 to 10 cm**
  - Phase 3
  - Contractions are **2 to 3 minutes** apart, lasting **60 to 90 seconds**
  - Strong intensity

**Question**

A pregnant woman comes in to L&D (labor and delivery). She is 5 cm dilated, with contraction 5 minutes apart, lasting 45 seconds. What phase of labor is the pt in?

- The pt is in ACTIVE phase

One good studying strategy to use for memorizing the 3 phases of Stage 1 labor is to know everything about the Active (or Phase 2) of Stage 1

- Once you know the upper and lower limit values, you can deduce the values of Phase 1 and Phase 3
  - Phase 2 — Contractions: **3 to 5 minutes** and last **30 to 60 seconds**

**Stages and Phases of Labor**

- Stage 1—Onset of Labor → Cervical Dilation and Effacement
  - Phase 1—Latent
  - Phase 2—Active
  - Phase 3—Transition
- Stage 2—Delivery of Baby
- Stage 3—Delivery of Placenta

- Stage 4—Recovery: 2 hours until bleeding stops

### HESI Questions

What is purpose of uterine contraction in first **stage**?

- Dilation and effacement of the cervix

What is the purpose in 2nd **stage**?

- Delivery of baby

What is the purpose 3rd **stage**?

- Delivery of placenta

What is the purpose of 4th **stage**?

- Stop bleeding

When does postpartum technically begin?

- 2 hours after delivery of placenta

**Pay attention to whether the question is asking about stages or phases**

- There are 4 stages
- There are 3 phases, which are part of Stage 1

### Questions

What is the #1 priority of second phase?

- Pain management

What is the #1 priority of second stage?

- Clearing baby's airway

### Questions

What is the #1 priority of third phase?

- Checking cervical dilation, Helping pregnant mother with breathing and pain management

What is the #1 priority of third stage?

- Assess the placenta for smoothness and intactness, and for 3-vessel (not 2) umbilical cord present

### Stages and Phases of Labor

- **Stage 1—Onset of Labor**
  - Phase 1—Latent ... Dilation from **0 to 4 cm**  
Contractions are **5 to 30 minutes** apart, lasting **15 to 30 seconds**  
Mild intensity
  - Phase 2—Active ... dilation from **5 to 7 cm**  
Contractions are **3 to 5 minutes** apart, lasting **30 to 60 seconds**  
Moderate intensity
  - Phase 3—Transition ... dilation from **8 to 10 cm**  
Contractions are **2 to 3 minutes** apart, lasting **60 to 90 seconds**  
Strong intensity
- **Stage 2—Delivery of Baby**
- **Stage 3—Delivery of Placenta**
- **Stage 4—Recovery: 2 hours until bleeding stops**

**Memorize for the following 3 questions**

Uterine contraction should be **no longer than 90 seconds** and **no closer than 2 minutes**

**Questions**

What is a sign of uterine tetany?

- **No longer than 90 seconds** and **no closer than 2 minutes**

What parameters regarding uterine contraction would make you stop Pitocin?

- **No longer than 90 seconds** and **no closer than 2 minutes**

What is uterine hyperstimulation?

- **No longer than 90 seconds** and **no closer than 2 minutes**

**Know that phrase**

- **No longer than 90 seconds** and **no closer than 2 minutes**

**Assessment of frequency of contraction**

- Frequency is from the beginning of one contraction and beginning of the next

**Assessment of duration of contraction**

- Duration of contraction is from the beginning to end of one contraction

**Intensity of labor**

- Assessment of intensity of labor is purely subjective
- **Teach her how to palpate with one hand over the fundus with the pads of the fingers**

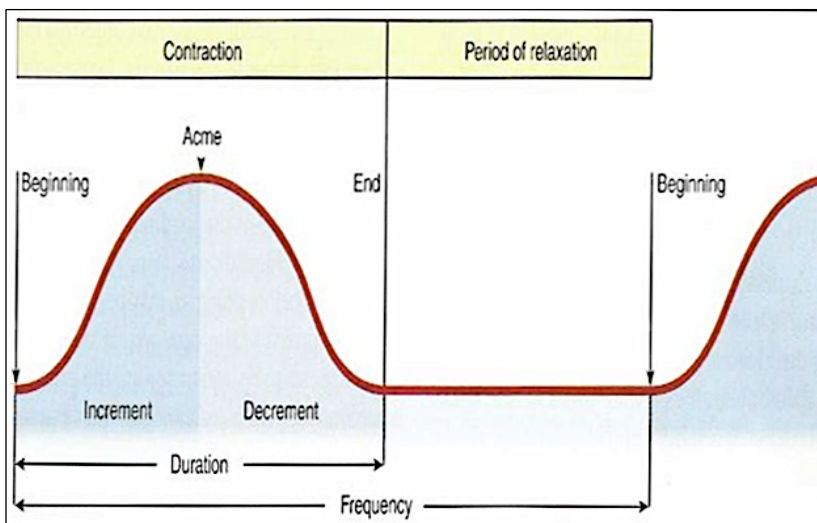
**Complications of labor**

- There are 18 complications
- Know them all
- But only 3 protocols—focus on the 3 protocols

Painful Back pain—**“OP”** = Oh Pain. What do you do?

- Position—Push
- What position?
  - KNEE-CHEST position then
  - PUSH with fist into sacrum to use counter pressure

**“OP”** ... Anything (right or left) occiput posterior



### **Prolapsed Cord**

- Push head in off cord and position knee-chest or Trendelenburg
- Prep for C-section
- Think PUSH/POSTION
  - Push head off the cord of fetus and position mother to knee-chest

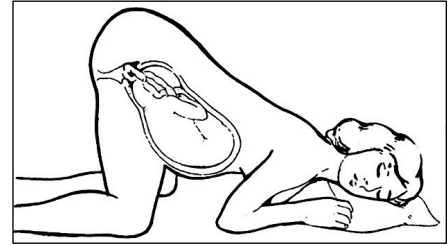


Figure 8. Knee-chest position.

### **Interventions for all other complications**

- Tetany
- Maternal hypertension
- Vena cava syndrome
- Toxemia
- Uterine rupture
- All treated the same—with “**LION**”
  - Left side (place mother on the left side)
  - IV
  - Oxygen
  - Notify HCP
- Stop Pitocin (pit) if it was running—the first thing to do

### **Implement before “LION”**



- In an OB crisis, if **pitocin** is running, **stop it** first. Then, implement “**LION**”

### **When to administer systemic pain medication**

- Do not administer a systemic pain medication to a woman in labor if the baby is likely to be born when the med is at its peak ... For example

### **Questions**

- You have a primagravida at 5-cm dilated who wants her IV push pain med. What is the nursing intervention?
  - Hold the pain medication
  - This is because the pt is primagravida and will deliver in about 15 to 30 minutes when the medication peaks
- You have a multigravida at 8-cm wants her IM pain med. What is the nursing intervention?
  - Do not administer the pain

medication Labor and Delivery

(Continued onto next lecture)