

### Infertility

Definition: failure to conceive after **one year** of regular, unprotected intercourse.

Etiology: **males** 40% - abnormal spermatogenesis. **Females** - anovulatory cycles or ovarian dysfunction = 30%, congenital or acquired disorders.

**DX: hysterosalpingography** to evaluate tubal patency or abnormalities.

Management: 1. **Clomiphene** — induces ovulation. 2. If amenorrhea or oligomenorrhea, correct endocrine problems. 3. In vitro fertilization

### Uncomplicated Pregnancy Physical Exam

<b>Ladin's sign</b>	Uterus softening after 6 weeks
<b>Hegar's sign</b>	Uterine isthmus softening after 6-8 weeks
<b>Piskacek's sign</b>	Palpable lateral bulge or softening of uterine fundus 7-8 weeks
<b>Goodell's sign</b>	Cervical softening due to increased vascularization, 4-5 weeks
<b>Chadwick's sign</b>	Bluish coloration of cervix and vulva, 8-12 weeks
<b>Fetal Heart tones</b>	10-12 weeks, <b>normal = 120-160 bpm</b>
<b>Pelvic Ultrasound</b>	Fetus detected 5-6 weeks
<b>Fetal Movement</b>	16-20 weeks

### Fundal Height Measurement

<b>12 weeks</b>	Above pubic symphysis
<b>16 weeks</b>	Midway between pubis and umbilicus
<b>20 weeks</b>	At umbilicus
<b>38 weeks</b>	2-3 cm below xiphoid process

### Prenatal Care

#### Estimated Date of Delivery (Naegle's Rule) :

1st day of LMP + 7 days - 3 months

Blood pressure

Blood type & Rh

CBC

UA (glucose & protein)

Random glucose

HBsAg — hepatitis surfaced antigen, measures acute or chronic

HIV

Syphilis

Rubella Titer

Sickle cell and cystic fibrosis screen

PAP smear

### Rh Alloimmunization

Rh(D) negative women carry Rh(D) positive fetus —> exposure to fetal blood mixing D-positive RBCs

Causes maternal alloimmunization and maternal anti-Rh(D) IgG antibodies

Subsequent pregnancies —> antibodies may cross placental and attack fetal RBCs = hemolysis of fetal RBCs

If mother is Rh(D) negative and father is Rh(D) positive, 50% chance

**Anti-D Rh immunoglobulin (RhoGAM)** 300 micrograms given @ 28 weeks, within 72 hours of delivery of Rh(D) positive baby, AND after any potential mixing of blood (spontaneous abortion, ectopic pregnancy, amniocentesis, etc.)

### First Trimester Screening: Weeks 1-12

**Free beta-hCG** Abnormally high or low may indicate chromosomal abnormalities

**PAPP-A** Serum pregnancy-associated plasma protein-A — Low with fetal Down syndrome

### First Trimester Screening: Weeks 1-12 (cont)

**Nuchal translucency US** **10-12 weeks** — trisomies 13, 18, and 21. Increased thickness = abnormal, offer chorionic villous sampling or amniocentesis.

**Fetal US** **10-12 weeks**, transvaginal can detect at 5-6 weeks after LMP

**Uterine size and gestation** If abnormal, offer CVS or amniocentesis

**CVS** **10-13 weeks** if abnormalities or if at increased risk of abnormalities (>35 yo)

### Second trimester screening: Weeks 13-27

**Triple screening @ 15-20 weeks** **Alpha-feta protein:** if high, indicates open neural tube defects / spina bifida. **Beta-hCG:** high = Down syndrome/trisomy 21, low = trisomy 18. **Unconjugated Estriol:** often low in trisomy 21 and 18.

**Gestational Diabetes @ 24-28 weeks** 1 hour & 3 hours abnormal = >140

### Third Trimester Screening: Weeks 27-birth

**Repeat antibody titers** In RH(D) negative, antibody negative —> **give RhoGAM 300 micrograms @ 28 weeks**

**Hemoglobin & Hematocrit** 35 weeks

### Third Trimester Screening: Weeks 27-birth (cont)

**Group B Streptococcus** 36 0/7 to 37 6/7 weeks, if positive → prophylactic abx during labor w/in 4 hours of delivery with IV PCN G 5 million units, then 2.5 million units every 4 hours. Second line = Ampicillin, Cefazolin, Clindamycin, Vancomycin

**Biophysical Profile** Fetal breathing, fetal tones, amniotic fluid levels, NST, and gross fetal movements (2 points each)

**Non-stress testing** **Reactive Test:**  $\geq 2$  accelerations of fetal HR  $\geq 15$  bpm from baseline lasting 15 seconds over 20 minutes — fetal well being, repeat weekly-biweekly. **Nonreactive test:** No fetal HR accelerations or  $\leq 15$  bpm lasting  $< 15$  s — indicates sleeping, immature, or compromised fetus → vibratory stimulus to wake or contraction stress test.

**Contraction Stress Testing** **Negative test:** No late decelerations in presence of 3 contractions in 10 minutes = fetal well being. **Positive CST:** repetitive late deceleration following  $\geq 50\%$  of contraction = worrisome, hospitalize for fetal monitoring or delivery.

### Intra Partum (onset of labor-delivery of placenta)

**Braxton Hicks** Spontaneous uterine contractions late in pregnancy **not associated with cervical dilation**

### Intra Partum (onset of labor-delivery of placenta) (cont)

**Lightening** Fetal head descending into the pelvis causing a change in abdomen's shape and sensation

**Ruptured Membranes** Sudden gush of liquid or constant leakage of fluid

**Bloody Show** Passage of blood-tinged cervical mucus late in pregnancy, occurs with cervix is thinning (effacement)

**True Labor** Contractions of uterine fundus with radiation to lower back & abdomen. Regular + painful contraction of uterus causes cervical dilation and fetus expulsion

### Cardinal Movements of labor

**Engagement** When the fetal presenting part enters the pelvic inlet

**Descent** Passage of the head into pelvis (lightening)

**Flexion** Flexion of head to allow smallest diameter to present to pelvis

**Internal Rotation** Fetal vertex moves from occiput transverse position to position where the Sagittarius suture is parallel to the anteroposterior diameter of pelvis

**Extension** Vertex extends as it passes beneath the pubic symphysis

**External Rotation** Fetus externally rotates after the head is delivered so that the shoulder can be delivered

**Expulsion** Of fetus and placenta

### Stages of Labor

**Stage 1: Onset of labor (true contractions-cervical dilation @ 10 cm)** **Latent phase:** cervix effacement with gradual cervical dilation. **Active Phase:** rapid cervical dilation (begins @ 3-4 cm)

**Stage 2: full dilation-delivery of fetus** **Passive Phase:** complete cervical dilation to active maternal expulsive efforts. **Active phase:** from active maternal expulsive efforts-delivery of fetus.

**Stage 3: postpartum until delivery of placenta (0-30 mins)** **Signs of placental separation:** 1. Gush of blood. 2. Lengthening of umbilical cord. 3. Anterior-caphalad movement of uterine fundus (becomes globular and firm) after placenta detaches.

**Stage 4: after delivery** Mother is assessed for complications, 1-2 hours after delivery