

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

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

Fundal Height Measurement

12 weeks	Above pubic symphysis
16 weeks	Midway between pubis and umbilicus
20 weeks	At umbilicus
38 weeks	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:** ≥ 2 accelerations of fetal HR ≥ 15 bpm from baseline lasting 15 seconds over 20 minutes — fetal well being, repeat weekly-biweekly. **Nonreactive test:** No fetal HR accelerations or ≤ 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