First Prenatal Visit

- Dating the pregnancy
  - Last menstrual period – Regular? Certain?
  - Naegele’s rule – add 1 week, subtract 3 months
  - Avg length of gestation ~ 280 days
  - Confirm with ultrasound

Determination of gestational age

- CRL up to ~14 weeks: ± 5-7 days
  - >16 weeks
    - Biparietal diameter (BPD)
    - Head circumference (HC)
    - Abdominal circumference (AC)
    - Femur length (FL)
  - Measurements >16 weeks: ± 10 days

The Dating Game...

Scenario 1
- 24 yo woman, 1st pregnancy, LMP = Dec 1st, regular cycles q 28 days, Usd Feb 20th, CRL = 12 weeks 2 days.

Her due date is
a) Sept 7th
b) Aug 24th
c) Sept 2nd
d) When ever the baby decides to come

Scenario 2
- 24 yo woman, 1st pregnancy, LMP = Dec 1st, forgot 2 Alesse tablets, Usd April 5th, biometry 20 weeks

Her due date is
a) Sept 7th
b) Aug 24th
c) Sept 2nd
d) When ever the baby decides to come
The Dating Game…

Scenario 3

• 24 yo woman, 1st pregnancy, LMP = Dec 1st, regular cycles every 35 days, no Usd yet.

Her due date is
a) Sept 7th
b) Sept 14th
c) Sept 2nd
d) When ever the baby decides to come

Antenatal Visits

• Frequency
  • Initial assessment < 12 wks
  • Q 4-6 wks to 28 wks / Q2 wks to 36 wks / weekly to delivery

First and Second Trimester

Special considerations:

• Prenatal screening for aneuploidy and NTD (FTS, IPS, MSS)

• Prenatal investigations

• Fetal Ultrasound

Down syndrome

Risk for chromosomal abnormalities

<table>
<thead>
<tr>
<th>Maternal age (yrs)</th>
<th>Trisomy 21</th>
<th>Trisomy 18</th>
<th>Trisomy 13</th>
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<tbody>
<tr>
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<td>25</td>
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</table>
**Integrated screening - summary**

- Offered to all pregnant women
- Screening test, **NOT** a diagnostic test
- Integrated screening
  - Maternal serum PAPP-A and βHCG at 11-14 weeks
  - Nuchal translucency at 11-14 weeks
  - uEstradiol, aFP and βHCG at 15-16 weeks

*Detection of ~90-95% of T21*

*Offer amniocentesis when risk > 1:200*

---

**Nuchal translucency**

- **normal**

---

**Amniocentesis**

- Genetic Counseling
- GA 16 weeks
- Ultrasonic visualization
- 20 cc amniotic fluid
- Culture fetal fibroblasts
- Result 2-3 weeks
- 0.5% risk pregnancy loss (1:200)

---

**Chorion villus biopsy**

- Genetic Counseling
- 10-12 weeks
- Transabdominal or transcervical
- Karyotype result in 2-3 weeks
- 0.8% risk pregnancy loss (1:100 – 1:150)

---

**Nasal bone**

---

**First and Second Trimester**

**Special considerations:**

- Prenatal screening for aneuploidy and NTD (FTS, IPS, MSS)
- Prenatal investigations
- Fetal Ultrasound
‘Routine’ tests in pregnancy
I. First diagnosis of pregnancy

- Hgb
- Blood group and antibody screen
- Urine dip for protein, infection
- VDRL
- Rubella titre
- HBsAg
- STD screen if indicated
- Discuss and offer HIV testing
- Ultrasound

Rhesus-immunization

- Rhesus negative pregnant women
- Sensitization either through previous pregnancy or transfusion
- IgG crosses placenta, coated erythrocytes destroyed in fetal RES
- Fetal anemia → hydrops

Rhesus-immunization

Prevention of HIV transmission

- Transmission of HIV dependent on viral load at delivery:
  - 10% at 1000 copies/mL
  - 17% at 1000-10,000 copies/mL
  - 33% at >10,000 copies/mL
  - 0.6-2% with HAART
- Monitoring: Viral load & CD4 count
- Management:
  - HAART if >1000 copies/mL
  - Caesarean section if >1000 copies/mL
  - Intrapartum zidovudine

First and Second Trimester

Special considerations:

- Prenatal screening for aneuploidy and NTD (FTS, IPS, MSS)
- Prenatal investigations
- Fetal Ultrasound
Ultrasound in obstetrics
1st trimester (0-12 weeks)
- Diagnosis of pregnancy
- Assessment of viability
- Gestational age
- Ectopic pregnancy
- Risk assessment for chromosomal abnormalities
- Multiple pregnancy - chorionicity

Ultrasound in obstetrics
2nd trimester (18-20 weeks)
- Gestational age
- Structural defects
- Placental localization
- Assessment of the cervix
- Amniotic fluid volume

Diagnosis of pregnancy
Gestational sac 4-5 weeks
Fetal heart rate 6 weeks

Chorionicity in multiple pregnancies
Lambda-sign (λ) Dichorionic
Thin membrane Monochorionic
No membrane Monoamniotic

Assessment of cervix

Placental localization
Diagnosis of fetal anomalies

- Assessment of fetal growth, placenta, umbilical cord and amniotic fluid
- Detailed survey of skeletal structures, brain, face, thorax, heart, diaphragm, abdomen, urogenital system, etc
- Best at 18-20 weeks:
  - Before 18 weeks: some structures not fully developed
  - After 24 weeks: legal termination issues and increased ossification

Third Trimester

Objectives:
- Determine gestational age
- Assess maternal health/wellbeing
- Assess fetal health/wellbeing

- Specific history questions
- Maternal weight, BP, urine dip
- SFH (in cm) should equal GA after 20 wks
- Plot growth on curve on A/N II
- Leopold’s maneuvers to determine lie

Ultrasound in obstetrics
3rd trimester (25-40 weeks)

- Fetal well-being
- Fetal growth

Amniotic fluid volume

- 12 weeks: 35ml
- 18 weeks: 250ml
- 36 weeks: 1000ml
- 40 weeks: 750ml

Ultrasound and amniotic fluid estimation

- Largest vertical pocket >8 cm Polyhydramnios
- Largest vertical pocket <2 cm Oligo- or anhydramnios

36 yo woman, first pregnancy, BMI 41. Fasting blood glucose 6.0 at 28 weeks
32 yo woman, first pregnancy, pre pregnancy weight 110 lbs, weight gain 25 lbs
18 yo woman, first pregnancy, smoker, poor nutrition

Match the history to the plot of SF heights
Assessment of fetal well-being

Assessment of fetal wellbeing
• Biophysical profile
• Non-stress test (Cardiotocography)

Testing for causative factors: ie placental function
• Doppler ultrasound of umbilical circulation

Assessment of fetal well-being: BIOPHYSICAL PROFILE

<table>
<thead>
<tr>
<th>Normal (2)</th>
<th>Abnormal (0)</th>
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</thead>
<tbody>
<tr>
<td>Fetal breathing</td>
<td>&gt;30 sec in 30 min</td>
</tr>
<tr>
<td></td>
<td>&lt;30 secs in 30 min</td>
</tr>
<tr>
<td>Fetal movements</td>
<td>≥3 gross body movements in 30 min</td>
</tr>
<tr>
<td></td>
<td>&lt;3 movements in 30 min</td>
</tr>
<tr>
<td>Fetal tone</td>
<td>Limb movement from flexion to extension, return to flexion</td>
</tr>
<tr>
<td></td>
<td>Fetus in position with limbs extended or no fetal movements</td>
</tr>
<tr>
<td>Amniotic fluid</td>
<td>One pocket &gt; 2cm in two perpendicular planes</td>
</tr>
<tr>
<td></td>
<td>Largest pocket &lt;2cm</td>
</tr>
<tr>
<td>Non-stress test</td>
<td>≥2 accelerations in 40 min</td>
</tr>
<tr>
<td></td>
<td>&lt;2 accelerations</td>
</tr>
</tbody>
</table>

Third Trimester

Special Considerations

• 26-28 weeks – GDM screening
• 28 weeks – Rh Ig if Rh negative
• Specific history questions
• 35-37 weeks – Vag/rectal swab for GBS