“The Standard Antepartum Obstetrical Sonogram”  
AIUM Guidelines Revisited

AKA: How to do a good job and stay out of trouble.

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“Routine” Obstetrical Sonography?

NIH Consensus Conference - 1984  
ACOG - 1988

Ob sono only for specific indications...

NIH Consensus Medical Indications For Selective Obstetric US Examinations

1. Estimation of gest. age for uncertain dates, verif. of dates for scheduled C-sect., indicated induction, or elective termination of preg.
2. Evaluation of fetal growth
3. Vaginal bleeding
4. Determination of fetal presentation
5. Suspected multiple gestation
6. Adjunct to amniocentesis
7. Size/Dates discrepancy
8. Pelvic mass
9. Suspect hydatiform mole
10. Adjunct to cerclage
11. Suspect fetal death
12. Suspected uterine abnl
13. IUD localization
14. Ovarian follicle surveillance
15. Biophysical evaluation of fetal well being
16. Observation of intrapartum events
17. Suspected poly or oligohydramnios
18. Suspected abruptio placenta
19. Adjunct to external version
20. Estimation of fetal wt or present. when PTL or PROM
21. Abnormal serum AFP
22. Follow-up of observed fetal anomaly
23. Follow-up of placental loc. for observed placenta previa
24. History of previous congenital anomaly
25. Serial eval. of growth in multiple gestations
26. Eval. of fetal condition in late registrants for prenatal care

2008 - The majority of pregnant patients who get prenatal care get at least one sonogram during their pregnancy.
Guidelines for Performance of the Obstetrical Sonogram*

- AIUM Practice Guideline
- 1996
- New one effective October 1, 2007

“The guidelines reflect what the AIUM considers the minimum criteria for a complete examination … but are not intended to establish a legal standard of care.”

www.aium.org/publication/clinical/obstetric.pdf

### Standard OB Sonogram (“Level 1”)

1. Standardized protocol
2. Help us perform complete and accurate studies.
3. Establish reasonable expectations
4. Like it or not, groundwork for “standard of care”

#### Targeted Sonogram (“Level 2”)

- Tailored to risk
  - (ie, AFP, prior preg., abnl sono, diabetes, drug)
- Not standardized

### 1st Trimester

- **1st trimester**
- **2nd trimester**

1. Location of gestational sac
2. Presence/absence of embryonic life
3. Crown-Rump Length measurement
4. Fetal/embryonic number
5. Uterus (incl. cervix) and adnexae

Transabdominal imaging is sufficient. May need vaginal imaging.
1. Location of gestational sac
2. Presence/absence of embryonic life
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**Heart motion (real-time)**
Vag. scan only if necessary

**Documentation** -
* report and cine clips
* doppler, M-mode not necess.

**Question #1**
You can reliably diagnose embryonic demise (failed preg.) in first trimester when you see:

A. No heart motion if CRL of embryo ≥ 3 mm
B. No heart motion regardless of embryo size
C. No heart motion, CRL of embryo = 7 mm
D. Can’t see an embryo but acc. to LMP, she is 8 wks

In MOST cases, heart motion detected as soon as embryo, (sometimes before).

Heart motion may not be visible ≤ 5mm.

*Dx “demise” only if CRL > 5 mm*
1. Location of gestational sac
2. Presence/absence of embryonic life
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**Gestational Age**

Crown Rump Length
6-13 wks

Estimates GA ± 5 days
(but little morphologic info.)

"If possible, the nuchal region should be assessed as part of a 1st trimester scan."

(Normal or might be abnormal)

Individual aneuploidy risk - NT SCREENING programs

**Twins are high risk pregnancies.**
- Report number embryos
- Chorionicity should be reported in 1st trimester.

**2nd and 3rd Trimester**

1. Fetal life, number and presentation
2. Amniotic fluid volume
3. Placental location and rel. to cervix
4. Estimation of gestational age
5. Estimation of fetal growth and weight
6. Uterus and adnexae
7. Specified fetal anatomic survey

Documentation - permanent record of images, date, name or identifier, written report in med. records, acc. to ACR communication standards.
Question #2
According to the AIUM guidelines, Amniotic Fluid Volume can be assessed by:

A. Subjective impression
B. Deepest vertical pocket
C. Amniotic Fluid Index
D. All of the above
E. None of the above

Amniotic Fluid Volume

1. Subjective (Qualitative) Impression
2. Semi-quantitative Methods (DVP, Amniotic Fluid Index)

Extremes associated with poor outcomes

Oligohydramnios

1. Suggests an abnormality (ie, fetal anom, twins)
2. Bad for fetal development (lung, limbs)

1. PROM
2. Dysmaturity - Post-dates, IUGR
3. GU malformations

"Level 2" Sonogram
1. Fetal life, number and presentation
2. Amniotic fluid volume
3. Placental location and rel. to cervix
4. Estimation of gestational age
5. Estimation of fetal growth and weight
6. Uterus and adnexae
7. Specified fetal anatomic survey

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Fetal Biometry

- Biparietal diameter
- Head circumference
- Abdominal circumference
- Femur length

- Gestational age
- Fetal weight

Abdominal Circumference

Biparietal diameter Head circumference

Femur Length Osseous shaft only

Do not incl. distal femoral point
**Accuracy of Predicting Gestational Age**

- CRL ± 5 days
- 2nd trimester (14-21 wks) ± 1-1.5 wks
- 3rd trimester ± 2.5-3 wks

2 SD ± 8%

**Estimating Fetal Weight**

Regression equations emphasize AC

EFW: 2 SD ± 15-20%

- First 20 weeks - size reflects GA
- After 20 weeks - Size reflects GA and growth

- LMP age or clinical age
- Weight of fetus compared with others of same clinical age
- Growth issues (placental sufficiency)
Resist changing menstrual dates!!!

IUGR = Sick baby

“The pregnancy should not be re-dated after an accurate earlier scan has been performed and is available for comparison.”

“Compare to prior studies if you have them.”

“Previous studies have been performed. Appropriateness of growth should be reported.”

Question #3
A pregnant woman transfers her care to you from a small community practice. Her doctor did a sono in his office in the first trimester and “confirmed her dates.” According to the patient he has bad equipment. He repeated the sono a few days ago (she is now 24 wks by the first trimester sono) and the femur is short by 4 weeks. He told her that her fetus might be have some kind of dwarfism.

You should:

A. Throw out the first trimester info
B. If the femur is 4 wks<expected, Dx bone dysplasia
C. If the parents are < 5 feet tall, assume it is constitutional
D. Consider early IUGR

Referral: Short Limb Dysplasia?

Based on 6 wks sono in doctor’s office (“He doesn’t have good equipment.”)
Fetal Growth: These Mistakes Make Lawyers Rich

3 ways to stay out of trouble:
1. Always ask her LMP date
2. If she doesn't remember, ask about her due date.
3. If she has had a prior sono at your ctr, compare it.

Report how you determined her due date.

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7. Specified fetal anatomic survey

Recommended (AIUM) Fetal Anatomy:

A. Head - cerebellum, choroid, cisterna, lateral vents, midline faix, CSP, LIPS
B. Chest - 4 chamber heart, if feasible, + outflow tracts
C. Abdomen - stomach (presence, size, situs), abd.cord insert.
D. GU - kidneys, bladder
E. Umbilical cord - # vessels, insertion into fetal abd.
F. Spine - cervical, thoracic, lumbar and sacral
G. Extremities - legs and arms (presence/absence)
H. Genitalia - medically indicated in low risk only in multiples

* New since 2007
Posterior fossa is very helpful but … you still need to examine the spine.

...part of the 2007 guidelines
If you cannot get a “4 chamber view” on the standard ob sono:

A. Just mention it in the report but not necessary to repeat
B. Bring her back for a limited scan in 1-2 wks
C. If all else is normal, no need to mention or repeat
D. Send her for a formal echocardiogram (University)

FOUR Chambers

If you cannot get a 4 chamber image of the heart, repeat sono.

Get outflow tracts (“if technically feasible”).

Increase detection of cardiac defects from 40-50% to 75%.
(Strongly encouraged)
AV Canal

Renal region and urinary bladder

Standard Obstetric Sonogram

“Level 2” or Targeted Obstetric Sonogram

Increased fetal risk

- 2nd opinion from standard exam
- Maternal risk - diabetes, drugs
- Serum screening issues
- Prior abnormal infant
Reasonable Expectations.

AIUM Guidelines are your friend.

Thank you!