The Level I Obstetrical Sonogram

An Update on AIUM/ACR/ACOG/SRU Guidelines

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Lecture Goals

• Nomenclature, history of “Levels”
• 2013 Practice Guidelines
  – General issues:
    • Practitioner training, equipment specifications, documentation, fetal safety, etc.
  – Trimester specific components

Highlight updates
Helpful tips and references

Level I

• Standard
• Routine
• 2nd or 3rd tri exam
• "Screening"

No disclosures.
The “level” of exam is predicated by the **INTENT** of the examination.

**OB US Levels**

**Level I**
- Standard
- Routine
- 2nd or 3rd tri exam
- “Screening”

**Level II**
- Detailed
- Targeted
- Directed
- “High-risk”

**History of “Levels”**

- MS-AFP screening program
- Level I US: to detect obstetric problems
  - Incorrect dates
  - Multiple gestations
  - Demise
- Level II US: to detect fetal anomalies
  - Open NTD
  - Abdominal wall defects
History: OB US Practice Guidelines

ACR and AIUM 1986 (rev. ’90, ’93, ’96)

ACOG 1988 (rev. ’93)

ACR, AIUM, ACOG 2003 (rev. 2007)

SRU

ACR, AIUM, ACOG, SRU 2013

“AIUM” Guidelines

- www.aium.org
  - Practice Guidelines
    - Obstetric
- Goal:
  - Provide a minimum standard for all practitioners of obstetrical ultrasound

2013 additions and modifications in blue

General Requirements

- Practitioner
  - Initial certification
  - MOC
- Exam request
- Documentation and retention
  - Images
  - Report
- Equipment specifications
- Fetal safety

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www.aium.org
General Requirements

- Practitioner
  - Initial certification
  - MOC - 170 exams/yr + 30 hrs Category 1 Credits/3 yrs
- Exam request
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  - Report
- Equipment specifications
- Fetal safety

www.aium.org

Fetal Safety

- Generally considered safe, when:
  - Performed for a valid medical indication
  - Using lowest possible exposure settings under ALARA principle
- Any pulsed Doppler (color, spectral or power) should be used only when there is a clear benefit/risk advantage

In keeping with the ALARA principle, to document embryonic/fetal heart rate:
- M-mode should always be used 1st
- Only if unsuccessful, spectral may be briefly used (4-5 heart beats)
  - Keeping TI < 1.0

Measure blip to blip

AIUM Statement on Measurement of Fetal Heart Rate
Bioeffects of US

- Two major categories:
  - Mechanical:
    - Energy imparted on gas particles to create movement → cavitation
      - MI (mechanical index)
  - Thermal:
    - Absorbed energy → heat
      - TI (thermal index)

  Not an issue for OB

  BIG issue for OB


Thermal Index

- Definition:
  - Ratio of power used to that required to produce a 1°C increase
  - For obstetrics, subdivided as:
    - TIS (soft tissues) < 10 wks
    - TIB (bone) ≥ 10 wks
  - Value: should always be < 1.0
    - Doppler exposure time < 5-10 min (never > 60 min)

AIUM Statement on the Safe Use of Doppler Ultrasound During 11-14 week scans (or earlier in pregnancy)

Where is TI displayed?

<table>
<thead>
<tr>
<th>TIS: 0.5</th>
<th>TIS: 0.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIB: 0.5</td>
<td>TIB: 0.6</td>
</tr>
<tr>
<td>MI: 1.3</td>
<td>MI: 0.8</td>
</tr>
</tbody>
</table>

NOTE: Not displayed if transducer/system incapable of exceeding an MI or TI of 1.0.

What can (and should) you do to limit the thermal energy imparted upon an embryo/fetus during an US exam?

A. Increase the dwell time
B. Use a lower frequency transducer
C. Increase use of zoom/resolution box
D. Select the lowest energy scan mode
What can (and should) you do to limit the thermal energy imparted upon an embryo/fetus during an US exam?

A. Increase the dwell time  
B. Use a lower frequency transducer  
C. Increase use of zoom/resolution box  
D. Select the lowest energy scan mode

Factors to Consider

- Increase dwell time  
- Use a lower frequency transducer  
- Increase of zoom/resolution box  
- Select the lowest energy scan mode


Factors to Consider

- Decrease dwell time  
- Use a higher frequency transducer  
- Increase of zoom/resolution box  
- Select the lowest energy scan mode

Factors to Consider

- Decrease dwell time
- Use a higher frequency transducer
- Limit use of zoom/resolution box
- Select the lowest energy scan mode

Low 34 mW/cm²  1180 mW/cm² High
B-mode M-mode color Doppler spectral Doppler

Classification of Fetal US Examinations

- 1st Trimester
- Standard 2nd or 3rd Trimester
- Limited
- Specialized
Limited Examination

- Appropriate only when a complete exam is on record
- Specific question requires investigation
  - Cardiac activity in a bleeding pt
  - Presentation in a laboring pt
  - Re-evaluation of fetal size or interval growth
  - Re-evaluate abnormalities previously noted

Specialized Examinations

- A detailed anatomic examination when an anomaly is suspected based upon:
  - History
  - Biochemical abnormalities
  - Results of a standard or limited exam
- Fetal Doppler
- Biophysical profile
- Fetal echocardiogram
- Additional biometric measurements

1st Trimester US Examination

( up to 13 weeks 6 days)

1st Trimester: Indications

- 12 indications, including:
  - Confirm IUP
  - Dating
  - Suspected ectopic
  - Vaginal bleeding
  - Assess for certain fetal anomalies, such as anencephaly, in high-risk patients
  - Nuchal translucency (NT) measurement when part of a screening program for aneuploidy
  - and others*

*see reference chart in syllabus
1st Trimester: Technique

- Overall Comment
  - Scanning in the first trimester may be performed either transabdominally or transvaginally. If transabdominal examination is not definitive, a transvaginal scan or transperineal scan should be performed whenever possible.

1st Trimester: Components

1. Gestational sac (presence/location), yolk sac, embryo and measurements
2. Cardiac activity
3. Embryonic/fetal number
4. Embryonic/fetal anatomy
5. Nuchal region
6. Uterus, adnexa, cul-de-sac (for abnormalities)
1. GS, YS, Embryo, Measurements

- Uterus (cervix) and adnexa evaluated for a gestational sac, and location if identified

- Comments:
  - Definitive dx requires a yolk sac or embryo
  - Yolk sac
    - Thin ring
    - < 6 mm

- Even w/o YS or embryo, any round/oval fluid collection is highly likely to represent an IUP (absent findings of an ectopic)
  - Intradecidual sign may be helpful
  - CAUTION: Pseudo-gestational sac of EP

- In “pregnancies of undetermined location”, recommend f/u US, +/- serum β-hCG “to avoid inappropriate intervention in a potentially viable early pregnancy.”

1. GS, YS, Embryo, Measurements

- Measurements:
  - MSD (no embryo)

- CRL (with embryo)

- MSD (no embryo)

Avg. of 2-3
1. GS, YS, Embryo, Measurements

- Measurements:
  - Biometry (when possible)
  - CRL (with embryo)
  - MSD (no embryo)

Pregnancy “Dating”

- Clinical dates = how old the pregnancy is
  - AKA: Menstrual ↔ clinical ↔ LMP age
  - Based on LNMP (assumes a 28 day cycle)
  - Equal to conceptual (fetal) age + 14 days

- US dates = size = how big the pregnancy is
  - AKA: US age
  - Based on US measurements (MSD, CRL, biometry)
  - Standardized to equate with menstrual age

ACOG/AIUM/SMFM Committee Opinion No. 611

<table>
<thead>
<tr>
<th>Gestational Age Range*</th>
<th>Method of Measurement</th>
<th>Discrepancy Between Ultrasound Dating and LMP Dating That Supports Redating</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 13 6/7 wk</td>
<td>CRL</td>
<td>More than 5 d</td>
</tr>
<tr>
<td>≥ 14 0/7 wk to 13 6/7 wk</td>
<td>2D, HC, AC, FL</td>
<td>More than 7 d</td>
</tr>
<tr>
<td>14 0/7 wk to 15 6/7 wk</td>
<td>2D, HC, AC, FL</td>
<td>More than 10 d</td>
</tr>
<tr>
<td>16 0/7 wk to 19 6/7 wk</td>
<td>2D, HC, AC, FL</td>
<td>More than 14 d</td>
</tr>
<tr>
<td>≥ 20 0/7 wk to 27 6/7 wk</td>
<td>2D, HC, AC, FL</td>
<td>More than 21 d</td>
</tr>
</tbody>
</table>

Method for Establishing Due Date, October 2014, acog.org

2. Heartbeat

- Presence or absence of cardiac activity:
  - Documented by 2-dimensional video clip OR
    M-mode imaging
  - Use of spectral Doppler imaging is discouraged

NOTE: “+ FHM”, “+ HM” no longer good enough
2. Heartbeat

- Comment:
  - Present:
    - CRL ≥ 2 mm, *typically*
  - Absent:
    - CRL ≥ 7 mm = demise

*TIP: Normal embryo grows ~ 1 mm/day*
2. Heartbeat

- Measured only if subjectively slow
- M mode = safest

**TIPS:**
- 100 – 190: avg at 5-9 wks
- < 85: poor outcome
- < 70: 100% loss rate

3. Number

- Embryonic/Fetal #

- If multiples:
  - Chorionicity
  - Amnionicity

**What is the chorionicity and amnionicity of this 1st trimester pregnancy?**

A. Dichorionic/Diamniotic
B. Dichorionic/Monoamniotic
C. Monochorionic/Diamniotic
D. Monochorionic/Monoamniotic
4. Anatomy

- Embryonic/fetal anatomy appropriate for the 1st trimester should be assessed.
4. Anatomy

- Embryonic/fetal anatomy appropriate for the 1<sup>st</sup> trimester should be assessed.

Rhombencephalon

Probable physiologic gut herniation

TIP: Recommend f/u at 13 wks

Gastroschisis

Anencephaly
5. Nuchal Region

- Nuchal region should be imaged, and abnormalities such as cystic hygroma should be documented.

- If risk of fetal aneuploidy is desired, a very specific measurement, at a specific age (per lab) in conjunction with serum biochemistry is necessary as follows:

**NT Measurement Technique**

- Mid-sagittal plane
- Head, neck, upper thorax, neutral position

- Identify amnion
- Electronic calipers
- Perpendicular to long axis
- Inner borders of widest space

11-14 wks < 3.5 mm
39 yo pregnant woman with irregular cycles

Recommend formal NT screening

6. Maternal Anatomy

- Uterus, cervix, adnexal structures & cul-de-sac
  - Abnormalities imaged and documented
  - Adnexal masses
    - Appearance
    - Size
    - Location

6. Maternal Anatomy cont’d...

- Leiomyomata
  - Presence, #
  - Size of largest or any potentially clinically significant
- Uterine anomalies
- Cul-de-sac free fluid

2nd and 3rd Trimester US Examination

(14 weeks, 0 days and above)
2\textsuperscript{nd} & 3\textsuperscript{rd} Trimester Indications

- 28 indications, including:
  - Estimation of gestational age
  - Evaluation of fetal growth
  - Vaginal bleeding
  - Pelvic pain
  - To assess for findings that may increase risk for aneuploidy
  - Screening for fetal anomalies
  
  
  .....and others*

*see reference chart in syllabus

2\textsuperscript{nd} & 3\textsuperscript{rd} Trimester: Components

1. Fetal cardiac activity, number, presentation
2. Amniotic fluid volume
3. Placenta and cord
4. Gestational age assessment
5. Fetal weight estimation
6. Maternal anatomy
7. Fetal anatomy

1. Cardiac Activity, #, Presentation

- Fetal cardiac activity
  - Is it living?
- Comment:
  - Abnormal heart rate +/- or rhythm should be documented

TIPS:
- Tachycardia: > 220 bpm
- Bradycardia: < 95 pm

In Utero Fetal demise
1. Cardiac Activity, #, Presentation

- Fetal number
  - Multiple gestations:
    - Chorionicity & amnionicity
    - Comparison of fetal size
    - Estimation of amniotic fluid volume on both sides of the membrane
    - Fetal genitalia (when visualized)

Chorionicity and Amnionicity

*In Order.....*

- Count placental masses
  - Two: Dichorionic
  - One: Monochorionic or Dichorionic “fused”
  - Evaluate genitalia
    - Opposite: Dichorionic
    - Same: Mono or Di
      - Assess membrane
        - Thick, “twin-peak” sign: Di/Di
        - Thin, “T” sign”: Mono/Di
        - None: Mo/Di or Mo/Mo

Membrane Assessment

*Trickiest part!*

- Thick – Di/Di
- Thin – Mo/Di
Membrane Assessment

- Membrane thickness
  - Subjective
  - Technical considerations
  - Progressively thins

- Intersection w/ placenta may be more informative

Single Placental Mass

When no membrane is seen in a twin gestation, which scenario is most likely?

A. Mono/Mono
B. Mono/Di with twin-twin transfusion (TTT)
C. Mono/Di with bilateral renal agenesis for 1 twin
D. Conjoined twins
When no membrane is seen in a twin gestation, which scenario is most likely?

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No Membrane?

- Mo/Di
- Statistically **much** more likely
- “Stuck-twin” phenomenon
  - TTT: poly/oligo
  - Oligo for 1 twin
- Mo/Mo

- Mo/Di
  - Statistically **much** more likely
  - “Stuck-twin” phenomenon
    - TTT: poly/oligo
    - Oligo for 1 twin
- Mo/Mo
  - Cord entanglement diagnostic
1. Cardiac Activity, #, Presentation

- Lie = axis
- Longitudinal
- Transverse
- Cephalic/Vertex
- Breech
- Fetal head on maternal right/left

Presentation = presenting part

2. Fluid

- A qualitative or semi-quantitative estimate of amniotic fluid volume
  - Qualitative/subjective
  - Semi-quantitative methods:
    - Single deepest pocket
    - Amniotic fluid index (AFI)
    - 2-diameter pocket

2. Fluid - Qualitative

Oligo TIPS:
- Anatomy challenging to see
2. Fluid - Qualitative

- Oligo TIPS:
  - Anatomy challenging to see
  - Decreased fetal movement
- Poly TIPS:
  - "Variable" presentation

2. Fluid – Semi-quantitative

- Single pocket method
  - ≤ 2 cm = oligo
  - ≥ 8 cm = poly

- Amniotic fluid index (AFI)
  - ≤ 5 cm = oligo
  - ≥ 24 cm = poly

*All depth measurements of pockets of ≥ 1cm width
2. Fluid – Semi-quantitative

- Single pocket method*
  - $\leq 2\text{ cm} = \text{ oligo}$
  - $\geq 8\text{ cm} = \text{ poly}$
- Amniotic fluid index (AFI)*
  - $\leq 5\text{ cm} = \text{ oligo}$
  - $\geq 24\text{ cm} = \text{ poly}$
- 2 diameter pocket
  - $< 1\text{ cm}$ in perpendicular planes = oligo

*All depth measurements of pockets of $\geq 1\text{ cm}$ width

2. Fluid – Semi-quantitative

- TIPS:
  - Same transducer orientation in all quadrants
  - No cord or fetal parts between calipers
  - Always use color Doppler

3. Placenta and Cord

- Placenta:
  - Location
  - Appearance
  - Relationship to internal cervical os
  - Cord Insertion site
- Umbilical cord:
  - Number of vessels

Placental Appearance

- Maturity
- Hemorrhage
- Masses/Gestational Trophoblastic Dz
- Invasion
- Structural variants
Placental Appearance

- Maturity
- Hemorrhage
- Masses/Gestational Trophoblastic Dz
- Invasion
- Structural variants

- Gr 0 = smooth
- Gr I = few scattered Ca ++
- Gr II = basal stippling
- Gr III = Ca ++’d cotyledons

The 3 terms currently recommended to describe the relationship of the placental edge to the cervix include:

A. Incomplete previa
B. Partial previa
C. Marginal previa
D. Low-lying placenta

I n c o m p l e t e  p r e v i a
P a r t i a l  p r e v i a
M a r g i n a l  p r e v i a
L o w - l y i n g  p l a c e n t a

4% 9% 31% 56%
**Relationship to Internal Os**

- **Complete previa**
  - covers internal os

- **Marginal previa**
  - comes to the internal os

- **Low-lying placenta**
  - within 2 cm of internal os

Incomplete/partial previa = clinical dx

**Low-Lying vs. Previa**

- < 16 wks, diagnosis of placenta previa is overestimated

- > 16 wks:
  - ≥ 2 cm from internal os = normal
  - < 2 cm but not covering internal os = low-lying
  - Covers internal os = previa

- Recommend US f/u for low-lying and previa at 32 wks
- If still low-lying or previa, f/u again at 36 wks

Low-Lying vs. Previa

Low-lying, edge to internal os


Low-Lying Placenta

• In 2 studies, vaginal delivery was more likely if 10 - 20 mm compared with those < 10 mm

• Must include a measurement of distance to internal os

• Do not hesitate to evaluate transvaginally


BEWARE: Low-Lying + Previa Pitfalls

• Kissing Contractions
• Over distended UB

BEWARE: Low-Lying + Previa Pitfalls

• Kissing Contractions
• Over distended UB
• Fetal hair
• Too early (< 16 wks)
Placental Cord Insertion Site

- Goal: To exclude vasa previa “a condition that has a high risk of fetal mortality if not diagnosed before labor.”

Placental Cord Insertion Site

- Vasa previa:
  - FIXED fetal vessels in front of internal os
  - NOT = funic presentation or prolapsed cord

Placental Cord Insertion Site

- Central, paracentral

Placental Cord Insertion Site

- Central, paracentral
- Marginal
  - ≤ 2 cm from edge
Placental Cord Insertion Site

- Central, paracentral
- Marginal
  - ≤ 2 cm from edge
- Velamentous
  - Into adjacent membrane

TIP: Always image in orthogonal planes

Vasa Previa

- 2 scenarios:
  - Velamentous CI in front of internal os

Vasa Previa

- 2 scenarios:
  - Velamentous CI in front of internal os
  - Succenturiate lobe with bridging membrane containing fetal vessels in front of internal os
3. Placenta and Cord

- Placenta:
  - Location
  - Appearance
  - Relationship to internal cervical os
  - Cord Insertion site

- Umbilical cord:
  - Number of vessels

Cord Vessel #

- Typically 3 (1 vein, 2 arteries)
- Most common abnormality: 2 vessel cord (1 vein, 1 artery)
  - Incidence: up to 0.5 -1.0%
  - Associations:
    - Structural abnormalities (CV, GI, CNS, GU): 33%
    - Aneuploidy: 10% (T18 – 40%)
  - If isolated: No reported anomalies or IUGR

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4. Assessment of Mean Gestational Age

- Biometry evaluated:
  - Biparietal diameter
  - Head circumference
  - Femoral diaphysis length
  - Abdominal circumference
  - “Average Abdominal Diameter”

TIP: May consider an axial view.

CAUTION: UB view may miss up to 14% of 2 VC’s

Bornemeier S, et.al. JDMS. November 1996 vol. 12 no. 6 260-265
Biparietal Diameter (BPD)

- Level:
  - Thalami
  - Cavum septum pellucidi or columns of fornix
Biparietal Diameter (BPD)
- Level:
  - Thalami
  - Cavum septum pellucidi or columns of fornix
  - Cerebellum should NOT be visible
- Measurement:
  - Outer to inner

Head Circumference (HC)
- Level:
  - Same as BPD
- Measurement:
  - Ellipse of outer perimeter of bony calvarium
  - Excludes soft tissues of scalp

Comment: If shape abnormal, HC more reliable

Abdominal Circumference (AC)
- Level:
  - True transverse view
    - Junction of umbilical vein/portal sinus
    - Stomach (when visible)
- Measurement:
  - Ellipse at skin line
  - Includes soft tissues of abdomen

GB
Persistent Right Umbilical Vein (PRUV)

Recommend fetal echocardiogram

Femoral Diaphysis Length (FL)

- Level:
  - Long axis of femoral shaft
  - Most accurate when beam of insonation is perpendicular to shaft

- Measurement:
  - Length of ossified shaft
  - Excludes epiphyses

TIPS: - Avoid distal femoral point

- If abnormal, use a linear transducer and measure both
4. Assessment of Mean Gestational Age

Comment:
- “...pregnancy should not be re-dated after an accurate earlier scan has been performed...”
- Discrepancies with menstrual age may suggest a growth abnormality (i.e. IUGR, macrosomia)
- Variability increases with advancing pregnancy

5. Fetal Weight Estimation

- From biometry, with AC most heavily weighted
- If prior studies available, must assess interval growth
- To assess ongoing growth, suggest 2 - 4 wk interval
- Known variability of +/- 15% to actual BW

TIPS on assessing interval growth:
- Compare US EDC to US EDC
- Use earliest available exam, not the most recent

6. Maternal Anatomy

- Adnexa
  - Ovaries
    - “…frequently not possible to image…”
- Uterus
  - Myomas:
    - Largest
    - Any potentially clinically significant
6. Maternal Anatomy

- Adnexa
  - Ovaries
    - "...frequently not possible to image..."
- Uterus
  - Myomas:
    - Largest
    - Any potentially clinically significant
- Cervix
  - Length
    - Transperineal or EV if needed
  
  Normal cervix: 2.8 - 5.0 cm

7. Fetal Anatomy

- Fetal anatomy:
  - May adequately be assessed after 18 wks GA
  - Limitations of the exam should be documented:
    - Fetal size, position, movement
    - Abdominal scars
    - Increased maternal wall thickness
    - Artifacts from acoustic shadowing
  - Following areas represent the essential elements of a standard examination of the fetus:
Fetal Anatomy

- Head, face and neck
  - Cerebellum
  - Cisterna magna
  - Choroid plexus
  - Lateral ventricles
  - Midline falx
  - Cavum septum pellucidi
  - Upper lip
- Chest
  - 4 chamber heart
  - Outflow tracts

Fetal Anatomy: Head, Face, & Neck

- Lateral ventricles
- Choroid plexus

Fetal Anatomy: Head, Face, & Neck

- Abdomen
  - Stomach
  - Kidneys
  - Urinary bladder
  - Cord insertion site
  - Umbilical cord vessel #
- Spine
- Extremities
- Sex

Normal < 10 mm

CP should fill ventricle
Normal < 10 mm
Fetal Anatomy: Head, Face, & Neck

- Lateral ventricles
- Choroid plexus
- Midline falx
- Cavum septum pellucidi
- Cerebellum
- Cisterna magna

Comment: Nuchal Thickening

- "A measurement of the nuchal fold may be helpful during a specific age interval to suggest an increased risk of aneuploidy." \(^1\)
- Measure outer calvarium to outer skin
- Normal: < 6 mm (15-20wk)

TIP: Caution "pseudo-thickening" if too coronal

\(^1\)Benacerraf B. Prenat Diagn 2002;22:798–801
Fetal Anatomy: Chest

- Heart:
  - 4-chamber view

**TIPS:**
- **Position in thorax**
  - Only RA and little bit of RV to R of midline
- **Axis**
  - Leftward ~ 45°

4CH sensitivity: 48%
**Fetal Anatomy: Chest**

- Heart:
  - 4-chamber view
- Outflow tracts
  - RVOT
  - LVOT

4CH + OFTs sensitivity: 78%

**Normal 4 CH view?**

TIP: Insist on cines!

**4 Chamber View + OFTs**

**Fetal Anatomy: Abdomen**

- Stomach
  - Presence/absence, situs

Gastric pseudomass 2° to swallowed debris
**Fetal Anatomy: Abdomen**

- Stomach
  - Presence/absence, situs
- Kidneys

**Fetal Urinary Tract Dilation (UTD)**

<table>
<thead>
<tr>
<th>Period</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 28 wks</td>
<td>&gt; 4mm</td>
</tr>
<tr>
<td>≥ 28wks-term</td>
<td>&gt; 7mm</td>
</tr>
<tr>
<td>Postnatal (&gt;48h)</td>
<td>&gt; 10mm</td>
</tr>
</tbody>
</table>

*Measure AP in axial plane*


**Fetal Anatomy: Spine**

- Cervical
- Thoracic
- Lumbar
- Sacral

*TIP: Consider longitudinal and transverse*
Fetal Anatomy: Extremities

• Legs and arms

Leg: femur or tib/fib?
Arm: humerus or rad/ulna?
Both?

Fetal Anatomy: Sex

• Genitalia

Comment: “In multiple gestations and when medically indicated”

Bilateral Club Feet

Fetal Anatomy: Sex

• Genitalia

Comment: “In multiple gestations and when medically indicated”
Fetal Anatomy: Sex

- Genitalia

Comment: “In multiple gestations and when medically indicated”

TIPS:
- If saving an image, make sure it looks normal

Fetal Anatomy: Sex

- Genitalia

Comment: “In multiple gestations and when medically indicated”

TIPS:
- If saving an image, make sure it looks normal
- Always respect parents desire to know

Overall Comment:

“While it is not possible to detect all structural congenital anomalies with diagnostic ultrasound, adherence to the following guidelines will maximize the possibility of detecting many fetal abnormalities.”

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“While it is not possible to detect all structural congenital anomalies with diagnostic ultrasound, adherence to the following guidelines will maximize the possibility of detecting many fetal abnormalities.”
Overall Comment:

“...a more detailed anatomic examination of the fetus may be necessary in some cases, such as when an abnormality is found or suspected on the standard examination or in pregnancies at high risk for fetal anomalies.”

“Level 2” or “Detailed” sonogram

CPT Codes: Level I vs. Level II

- **76805**
  - Ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation, after first trimester (> or = 14 weeks 0 days), transabdominal approach; single or first gestation.

- **76811**
  - Ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation plus detailed fetal anatomic examination, transabdominal approach; single or first gestation.

CPT Codes: Level I vs. Level II

- **76805**
  - Ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation, after first trimester (> or = 14 weeks 0 days), transabdominal approach; single or first gestation.

- **76811**
  - Ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation plus detailed fetal anatomic examination, transabdominal approach; single or first gestation.
Level I vs. Level II

- **Level I**
  - Specificity: 99%
  - Sensitivity:
    - RADIUS study, 1993: 35%
    - Helsinki US Trial, 1990: 52%
- **Level II**
  - Sensitivity: > 90%

More current data is unknown!

TIP: Consider heart, vents and kidneys on all follow-up growth studies

In Summary

- A Level I US is a lot more than looking at the fetus
- Adherence to guidelines essentially constitutes a “standard of care”
  - Increasing sensitivity
  - Possibly limiting medico-legal exposure
- Recommend:
  - Be picky!!!!!!
  - Assume every pregnancy has an abnormality until proven otherwise

“Is everything OK?”

- Level I
  - Specificity: 99%
  - Sensitivity:
    - RADIUS study, 1993: 35%
    - Helsinki US Trial, 1990: 52%
- Level II
  - Sensitivity: > 90%

Thank you for your attention!