EARLY 2nd TRIMESTER ANATOMY OBSTETRICAL ULTRASOUND PROTOCOL

GESTATIONAL AGE: For pregnancies 14w-17w6d

BILLING CODES:
UOBEA1- Singleton pregnancy ***(76805 Basic Anatomy)***
UOBEATWIN ***(76805 & 76810 for additional fetus)***
UOBEATRIP ***(76805 & 76810 x2 for additional fetuses)***
UOBEAQUAD ***(76805 & 76810 x3 for additional fetuses)***

PREP: No prep

DESCRIPTION: This is an Early Anatomy screening for high-risk pregnancies when specifically requested and does not replace the Detailed Anatomy screening. Patients should return after 18 weeks for the full anatomy screening.

DATING: As a routine, use the date provided by the clinician or patient's known LMP. Working EDD in EPIC should be used if more than one date is provided. Use AIUM and ACOG dating criteria if dating is unknown. Guidelines for redating based on ultrasound can be found here

IMAGES TO OBTAIN

Additional images may be requested as needed in addition to the basic requirements listed below.

MATERNAL STRUCTURES

UTERUS:

- Transverse images – Fundus, Mid and LUS
- Sagittal images – Right, Mid and Left
- If fibroids are present, measure the 2 largest/most significant. Fibroids located in the LUS should always be included due to potential delivery complications.
- For multiples, on each uterus image, label the location of fetuses with A, B etc.

ADNEXA:

- Right and left adnexal regions

OVARIES:

- Sagittal image of right and left ovary with and without measurements
- Transverse image of right and left ovary with and without measurements

CERVIX:

TRANSABDOMINAL IMAGING

- To be measured transabdominally on all pregnancies less than 24 weeks GA. Normal cervical length is greater than 3.0 cm before 24 weeks.
- Color Doppler image of the LUS to assess for vasa previa.
- If you suspect vessels are present or are unable to see the cervix without fetal parts obscuring the area, a transvaginal imaging study should be performed.

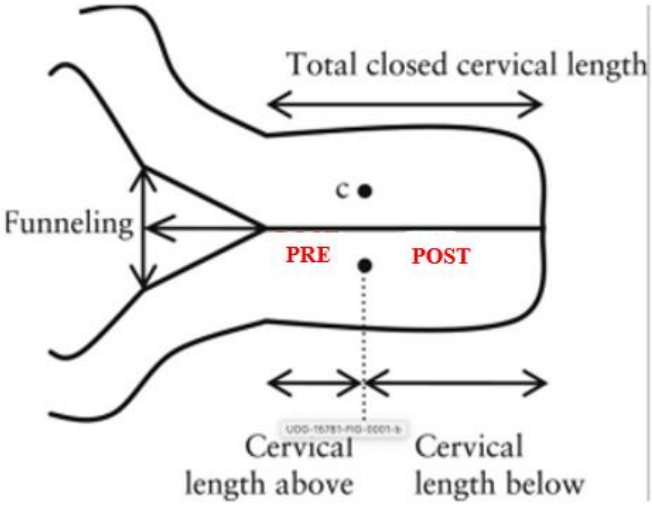
CERVIX continued …

TRANSVAGINAL IMAGING

STERILE OR BACTERIOSTATIC GEL PACKS AND SINGLE USE COVERS TO BE USED FOR ALL TRANSVAGINAL IMAGING.

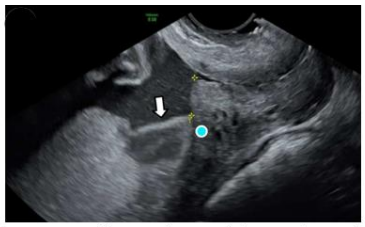
****Verbal consent to be obtained from the patient for transvaginal imaging. Documentation of consent to be included in report. If a male sonographer is doing the scan, there will need to be a female chaperone present for the transvaginal or translabial portion of the exam.***

- If the cervix appears shortened or funneled before 24 weeks, or if a cervical length is specifically requested, a transvaginal ultrasound should be performed. (*A translabial study can be done in place of transvaginal imaging in cases of PPROM, bulging membranes or patient request/refusal of TV.)* The following should be documented-
  - Total cervical length
  - Closed length of cervix
  - Open length of funneling if present. Greater than 50% open length of cervix is associated with higher risk of preterm delivery.
  - Observe for dynamic changes for at least 2 minutes. Images should be taken at the beginning and end of this period to document the time spent. If the cervix is dynamic, report the shortest closed cervical length.
  - Color Doppler image of the LUS to assess for vasa previa. Sample any vessels seen within 2cm of the cervical os with spectral Doppler to see if they are arterial or venous. If it is an arterial vessel, be sure to also include heart rate measurements to differentiate the fetal blood vessels from maternal vessels by comparing their respective heart rates.
- Transvaginal ultrasound is not needed to evaluate the cervix after 24 weeks. If you find a short or dilated cervix transabdominally during an ultrasound exam, contact the referring provider and inform them of the findings. If the referring provider cannot be contacted, call triage nurse or L&D.
- For cerclage evaluation: Take 2D images, as well as cine sweeps, of the cervix showing suture in transverse and sagittal. Measure the total cervical length AND closed cervical length from stitch to external os. Do not apply fundal pressure or Valsalva with patients that have a cerclage.



PLACENTAL LOCATION:

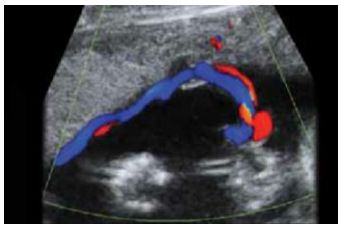
- Document location of placenta in sagittal and transverse.
- Show thickness and echotexture.
- If venous lakes are present, include a color image and a 2D cine clip showing the slow flow movement within.
- Assess for a bi-lobed placenta or succenturiate lobe. If present, document location of connecting vascular supply to the primary placental lobe.
- Assess relationship of placental edge to the internal cervical os to rule out placenta previa.
- Measure the distance from the inferior most portion of the placental tissue if it appears to be low lying. Also include a measurement from the edge of the placental sinus if one is present. A placenta should be described as low lying if the placental tissue is less than 2 cm, or if the sinus is less than 1.1 cm, from the internal cervical os.
- Cine clip of any abnormality.
- If accreta is suspected, see additional images needed in separate PAS protocol.



Measurement from a placental sinus to internal os.

PLACENTAL CORD ORIGIN

- Document the placental cord origin in transverse and sagittal planes using color Doppler and show the vessels of the cord separating into the placenta. To rule out a velamentous cord origin, the cord should be shown clearly coming out from the placenta, not just coursing along the surface.
- Measure the distance from the cord origin to the edge of the placenta if it appears near the edge. A marginal cord origin is defined as less than 2 cm from placental edge.



FETAL HEART RATE:

- Measure fetal heart rate with M-Mode. Normal range is 110 – 170 bpm. If the fetal heart rate is above or below, refer to Urgent OB Contact List to contact charge nurse or L&D. If being scanned at an outpatient clinic, contact the referring provider or on call the OB staff for further instructions.

FETAL POSITION:

- Document fetal position.
- For multiples, be as specific as possible and include description of fetus location in presentation section of report.

FETAL SITUS:

- With a dual screen image, demonstrate fetal situs. In a transverse view of the abdomen and chest, show side-by-side images of the fetal stomach and 4CH heart on the left side of the fetus's body.
- If the fetus has changed position since presentation was first documented, show the new presentation of fetus to confirm which side is the left side of body.

AMNIOTIC FLUID VOLUME:

- For singletons, AFI evaluation before 20 weeks should be done subjectively.
- For Mono-di multiples, measure the MVP beginning at 16 weeks.
- For Mono-mono multiples, measure 4 quadrant AFI beginning at 16 weeks.

AMNIOTIC FLUID INDEX 4 quadrant

<5cm	Oligohydramnios
5-24 cm	Normal
≥ 24 cm	Polyhydramnios

MVP and TWINS single largest pocket

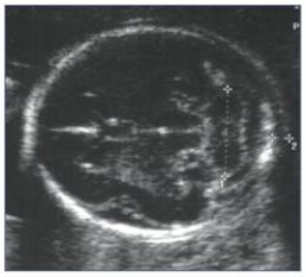
<2 cm	Oligohydramnios
2-8 cm	Normal
≥ 8 cm	Polyhydramnios

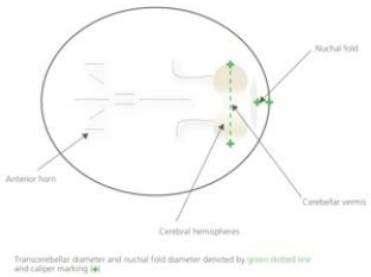
BIOMETRY: Measure each of the following 2-3 times:

BPD –measured on an axial plane that traverses the thalami and CSP
HC – include in image with BPD**.**
AC - Transverse image through the upper abdomen at the level of the fetal stomach, umbilical vein and portal sinus.
Humerus - See additional image requirements at end of protocol if HL measures ≤2%
Femur - See additional image requirements at end of protocol if FL measures ≤2%

HEAD AND NECK:

- Integrity and shape of the cranial vault/calvarium
- Lateral ventricles with measurements (normal < 10mm)
- Cisterna magna with measurements (normal < 10mm)
- Cerebellum with transverse diameter,
- Cerebellar vermis
- Cavum Septi Pellucidi (CSP) if visible
- Choroid Plexus
- Nuchal fold - measurement at the level of cerebellum. Normal range is < 6mm between 15-22 weeks. Measure on separate image from CM measurement.





FACE:

- Profile showing chin, intact maxilla and presence or absence of the nasal bone.
- ***Any additional face images that can be reasonably obtained.***

HEART:

While evaluating the fetal heart, attention should be paid to the following characteristics: **POSITION, SIZE, FUNCTION, RHYTHM, PROPORTION, INTRAVENTRICULAR SEPTATION, AND ORIENTATION OF THE GREAT VESSELS.**

- 4-chamber view which includes view of entire chest to assess size and position
- 4-chamber view that is zoomed in on heart.
- Cine clip of the 4-chamber view sweeping through the outflow tracks.
- 4-chamber apical view with color Doppler
- 3VT with color Doppler
- ***Any additional heart images that can be reasonably obtained.***

SPINE:

- 2D views if the cervical, thoracic, lumbar and sacral spine in longitudinal.
- 2D views if the cervical, thoracic, lumbar and sacral spine in transverse.
- Cine sweep in transverse from cervical spine to sacral spine

ABDOMEN:

- Measure the abdominal circumference 2-3 times using a transverse image through the upper abdomen at the level of the fetal stomach, umbilical vein and portal sinus.
- Stomach image in transverse
- Cord insertion and anterior abdominal wall showing the abdominal wall is intact on both sides of the cord insertion.

KIDNEYS:

- Longitudinal kidneys with measurements, labeled Left and Right.
- Transverse picture of kidneys at the level of renal pelvis.

BLADDER AND 3 VESSEL CORD:

- 2D transverse view of bladder.
- Document 3 vessel cord around bladder with color Doppler.

EXTREMITIES:

- Measure the most anterior femur length 2-3 times
- Measure the most anterior humerus length 2-3 times.
- Document all long bones with proper labeling –
  Femur, Tib/Fib; Humerus, Rad/Ulna
- Bilateral hands & feet

GENITALIA IF VISIBLE:

- Document in all pregnancies. Especially important in multiple gestational pregnancies and when medically indicated.
- If fetal sex is not wanted to be to known, select "Appears Normal" for the genitalia section of the report. **This field will be visible in My Chart.** If Cell Free DNA results are available, cross reference with ultrasound appearance

If abnormalities are seen, include additional 2D images, cine sweeps, 3D imaging and color Doppler images as needed.

ADDITIONAL IMAGES TO BE OBTAINED AS NEEDED

PERICARDIAL EFFUSION:

- < 3 mm of fluid surrounding the fetal heart is considered normal in the 2nd and 3rd trimester.
- Pericardial effusions may be seen with hydrops or other (primarily cardiac) structural anomalies.
- Recommendations—if the effusion is 3-7 mm evaluate for hydrops, arrhythmia, or structural anomalies. In the absence of these, the finding is likely clinically insignificant.

FETAL HYDROPS ASSESSMENT: (Defined by two of the following)

- Ascites
- Integumentary edema
- Pericardial effusion
- Pleural effusion
- Placentomegaly

MULTIPLE GESTATIONS – TWINS, TRIPLETS ETC

SEE SPECIALIZED PROTOCOL FOR TTTS AND TAPS FOR ALL MONOCHORIONIC PREGNANCIES

DETAILED ANATOMY IMAGE REQUIREMENTS SHOULD BE DONE FOR ALL MULTIPLE GESTATIONS. IN ADDITION TO THE FOLLOWING:

UTERUS: Sagittal and transverse **cine sweeps** to show orientation of fetuses.

POSITION: Document each fetus' position within in the uterus as well as presentation

- On each uterus image, label the location of fetuses with A, B etc.
- Include description of fetus location in "Presentation" section of Viewpoint report.

MEMBRANE / CHRONICITY AND AMNIONICITY ASSESSMENT:

- Document the free-floating membrane between each fetus and ensure membrane is not adhered to fetus.
- Demonstrate membrane completely separating each fetus
- Document the thickness of membrane.
- Look for twin peak sign (diamniotic) or T-sign (monoamniotic)

PLACENTA:

- Document both placentas and determine if there are separate or shared placentas present. Show twin peak sign between placentas if visualized.
- Describe the location of each placenta

AMNIOTIC FLUID:

- Measure the deepest pocket (MVP) for each. In mono/mono pregnancies use 4 quadrants for AFI assessment.

ADDITIONAL IMAGES AS NEEDED continued…

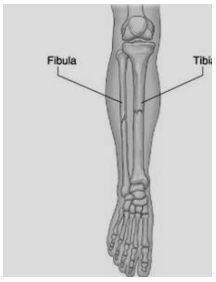
LONG BONES (FL or HL) MEASURING <2%

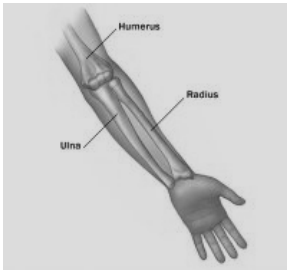
DETAILED ANATOMY IMAGE REQUIREMENTS IF ONLY A BASIC WAS ORDERD

MEASURE BILATERAL LONG BONES–

Note whether long bones and skull show proper mineralization, curvatures, or fractures:

- **Femur**
- **Tibia**
- **Fibula**
- **Humerus**
- **Radius**
- **Ulna**





CHEST CIRCUMFERENCE

SAGITTAL AND CORONAL VIEWS OF CHEST showing chest size in relation to abdomen.

Bell shaped chest

If indicated, a referral will be made to MFM for further evaluation and full skeletal dysplasia survey.

HC MEASURING ≤ 2% - *See Microcephaly protocol for additional info*

1. **SKULL**-Assess size, shape, sutures, and mineralization
2. **ORBITAL DISTANCE**
   a. **Inner to inner**
   b. **Outer to outer**
3. **CEREBELLUM**-Measured in transverse
4. **PROFILE** – Is forehead sloping or with normal contour
5. **LATERAL VENTRICLES**: (Normal is < 10 mm)
6. **CINE SWEEP** sweeping superior to inferior through the entire head showing structures of the brain.

SEE SEPARATE SPECIALIZED PROTOCOLS FOR:

- **MULTIPLE GESTATION COMPLICATIONS – TTTS/TAPS**
- **PLACENTA ACCRETA ASSESSMENT**
- **CHEST ANOMALIES:**
  - CONGENITAL DIAPHRAGMATIC HERNIA (CDH)
  - CPAM (CONGENITAL PULMONARY AIRWAY MALFORMATION)
  - PULMONARY SEQUESTRATION
- **GASTROSCHISIS/OMPHALOCELE ANOMALIES**
- **SKELETAL DYSPLASIA**
- **FETAL ARRYTHMIA**

EARLY ANATOMY OB ULTRASOUND IMAGE LIST

IMAGE	MODE
GENERAL	
Presentation	2D
FHR	Mmode
Situs	Dual
AFI if needed	*2D*
MATERNAL	
Uterus Sag Mid	2D
Uterus Sag Right	2D
Uterus Sag Left	2D
Uterus Trans Sup	2D
Uterus Trans Mid	2D
Uterus Trans Inf	2D
Rt Adnexa Trans	2D
Rt Adnexa Sag	2D
Rt Ovary Sag w/ & w/o measurements	2D+
Rt Ovary Trans w/ & w/o measurements	2D+
Lt Adnexa Trans	2D
Lt Adnexa Sag	2D
Lt Ovary Sag w/ & w/o measurements	2D+
Lt Ovary Trans w/ & w/o measurements	2D+
Cervix	2D+
LUS w color	Color
PLACENTA	
Placenta Edge / CVX Sag *w/ measurement if <2cm*	2D
Placenta Sag x2	2D
Placenta Trans x2	2D
Cord Origin Sag	2D
Cord Origin Trans	2D
HEAD	
BPD/HC x 3	2D+
Lateral Ventricle w/ measurement	2D+
Choroid Plexus	2D
Cavum Septum Pellucidum	2D
Cerebellum w/ measurement	2D+
Cisterna Magna w/ measurement	2D+
Vermis	2D
Head Cine S-I	Cne
Nuchal Fold w/ measurement	2D+
FACE	
Profile	2D
Nasal Bone	2D+
HEART	
4CH	2D
4CH cine showing contractility	Cine
Heart Cine showing outflow tracts.	Cine
3VT w color	Color
Any additional images that can be seen	2D

IMAGE	MODE
ABDOMEN	
AC x3	2D+ x3
Stomach	2D
Kidneys Trans	2D
Rt Kidney Sag w/ measurement	2D+
Lt Kidney Sag w/ measurement	2D+
Bladder	2D
3VC w/ color	Color
Cord insertion	2D
Genitalia	2D
SPINE	
Spine Sag	2D
C Spine Trans	2D
T Spine Trans	2D
L Spine Trans	2D
S Spine Trans	2D
Spine Trans cine C-S	Cine
UPPER EXTREMITIES	
HL x3	
Rt Humerus Lt Humerus Rt R/U Lt R/U Rt Hand Lt Hand Open Hand	
LOWER EXTREMITIES	
FL x 3	
Rt Femur Lt Fem Rt T/F Lt T/F Rt Foot Lt Foot	

EARLY ANATOMY OB PROTOCOL HISTORY

	Date	Changes made	By whom
Created	5/17/2022	Early Anatomy Ultrasound Protocol created to serve need of high-risk pregnancies prior to full anatomic survey.	Alyssa Stephenson-Famy, Manjiri Dighe, Shaun Bornemeier Updates recorded by Renee Betit Fitzgerald
Added	10/28/2022	Billing Codes	Renee Betit Fitzgerald
Changed	5/23/2023	Range of gestational age for exam changed from 15w0d-17w0d to 15w0d-16w6d	Manjiri Dighe
Added	4/17/2024	Image list Added stomach image	Renee Betit Fitzgerald
Added	2/12/2025	Added: **CERVIX** - A translabial study can be done in place of transvaginal imaging in cases of PPROM, bulging membranes or patient request/refusal of TV. -Assess whether the cervix is dynamic by observing for changes for at least 2 minutes. -Color image of the LUS to assess for vasa previa. -Sample any vessels seen within 2cm of the cervical os with spectral Doppler to see if they are arterial or venous. If it is an arterial vessel, be sure to also include a HR measurement to differentiate the fetal blood vessels from maternal vessels by comparing their respective heart rates. **PLACENTA** -If venous lakes are present, include a color image and a 2D cine clip showing the slow flow movement within. -Assess for a bi-lobed placenta or succenturiate lobe. If present, document location of connecting vascular supply to the primary placental lobe. -Document the placental cord origin in transverse and sagittal planes using color Doppler and show the vessels of the cord separating into the placenta. To rule out a velamentous cord origin, the cord should be shown clearly coming out from the placenta, not just coursing along the surface. Added: 3VT with color, Humerus length	Manjiri Dighe Renee Betit Fitzgerald
Updated	7/9/2025	Changed GA range to 14w-17w6d Added: *Any additional heart/face images that can be reasonably obtained.*	Amie Hollard Renee Betit Fitzgerald