

## Female Pelvis Ultrasound Protocol

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**\*\*NOTE for all examinations:**

1. **If documenting possible flow in a structure/mass, all color/Doppler should be accompanied by a spectral gate for waveform tracing**

**\*\*EXCEPTION: Fibroids do not need to have spectral tracing\*\***

2. **CINE clips to be labeled:**

-MIDLINE structures: "right to left" when longitudinal and "superior to inferior" or "fundus to cervix" when transverse

-RIGHT/LEFT structures: "lateral to medial" when longitudinal and "superior to inferior" when transverse

**\*\*each should be 1 sweep, NOT back and forth\*\***

**\*\*Kidneys do not need to be routinely imaged unless there is a uterine anomaly detected\*\***

### **Transabdominal: Full Bladder**

-Attempt to visualize all structures TA

### **Transvaginal: Empty Bladder**

-Should be performed for all patients, unless patient declines examination or pediatric/never sexually active patient (or discussed with radiologist)

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## NOTE:

-Most examination will be TA & TV

-TV only can be performed if ordered by clinician

*\*\*HOWEVER, if only TV is ordered and some anatomy is sub-optimally visualized or not seen at all, add (limited) TA to attempt visualization of missing structures\*\**

-Please comment on worksheet which measurements are to most accurate based on real-time scanning (TA or TV).

## Uterus:

**General:** See below for list of required views (STILL and CINE)

-Size:

→ Length in sagittal from fundus to lower uterine segment (exclude cervix)

→ AP in same sagittal view as length (perpendicular to length)

→ Width in transverse view

→ Provide volume measurement

-Orientation: document anteverted/retroverted (cervix relationship to vagina) and anteflexed/retroflexed (uterus relationship to cervix)

-Evaluate morphology: *see end of document for detailed comments regarding uterine morphology*

→ If anomaly is present, document kidneys

→ Attempt to assess if there are 2 separate cervixes

→ If machine is capable, attempt 3D

→ Coronal CINE, as below

**Myometrium:** See below for list of required views (STILL and CINE)

-Evaluate for fibroids or diffuse heterogeneity (adenomyosis)

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-Measure up to 5 *most significant* fibroids, draw on worksheet diagram. Assess significance as below:

→ Document location in uterus (fundus, body, lower uterine segment, cervix; right, left)

→ Document location within myometrium (intracavitary, submucosal, intramural, subserosal, pedunculated)

→ “Significant” fibroids:

(1) Submucosal

(2) Follow-ups

(3) Unusual appearance

(4) Largest

\*If all are typical *intramural* or *subserosal*, just select the 3 largest\*

-Evaluate subendometrial region for cysts or poor delineation between myometrium and endometrium

-Document C-section scar if present

**Endometrium:** See below for list of required views (STILL and CINE)

-Thickness

→Thickest part of the endometrium should be measured perpendicular to its longitudinal plane in the AP diameter from echogenic to echogenic border

→Adjacent hypoechoic myometrium and fluid in the cavity should be excluded.

→If there is fluid, measure bilayer thickness excluding fluid

→If endometrium is difficult to discern, adjust focal zone, depth/penetration, harmonics (often off will help)

-Evaluate for focal thickening or intraluminal mass

→ If any abnormality is detected, document presence of flow (color AND spectral Doppler)

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-NOTE: If mass is identified (any indication) or abnormal bleeding (any age), add ZOOMED in CINEs (as below)

**Cervix:** See below for list of required views (STILL and CINE)

-Assess morphology, presence of intraluminal fluid

-Provide images of Nabothian cysts: greyscale and color

-Document any abnormal thickening or mass

-Assess for color; if present, add spectral

-CINEs longitudinal and transverse (as below)

## ***REQUIRED IMAGES: UTERUS***

### **STILL**

#### *GENERAL UTERUS/MYOMETRIUM*

-Longitudinal greyscale (at least 5): far right (should see some adnexa), mid-right, midline, mid-left, far left (should see some adnexa)

-Transverse greyscale (at least 4): high fundal (should see external contour), fundal, mid-body, lower-uterine segment

#### *ENDOMETRIUM*

-ZOOMED in representative longitudinal and transverse greyscale and color images:

-If color is detected, add spectral to demonstrate waveform

#### *CERVIX*

-Representative longitudinal and transverse images greyscale and color

-If color is detected, add spectral to demonstrate waveform

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**CINE**: ALL female pelvis US should have at least TWO CINEs regardless of appearance or indication

## GENERAL OVERVIEW:

- TV longitudinal and transverse through entire uterus
  - TA if TV not performed or uterus seen better TA
- Multiple clips as necessary depending on uterine size and pathology

## **ADDITIONAL CINES, required and optional:**

### **REQUIRED:**

#### **1. Uterine anomaly:**

→True coronal to uterus

#### **2. Endometrial abnormality seen, regardless of indication (i.e., polyp, carcinoma, possible retained products, focal finding, etc.):**

→ZOOMED in *transverse and longitudinal* greyscale centered on endometrium

→ZOOMED in color (*best plane*) centered on endometrium

#### **3. Abnormal bleeding *in any age* (including r/o RPOC) and NO abnormality identified at time of scanning:**

→ZOOMED in *transverse and longitudinal* greyscale centered on endometrium

#### **4. Cervical abnormality** (excluding typical Nabothian cysts):

→ZOOMED in *transverse and longitudinal* greyscale centered on cervix

→ZOOMED in color (*best plane*) centered on cervix

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**OPTIONAL**, if whole uterus CINEs are inadequate:

**1. Fibroids:**

→ CINEs as necessary to show fibroid *location in myometrium and relationship to endometrium*

→ NOTE: Add TA if that better demonstrates findings

**2. Incidental endometrial findings** (including IUD, subendometrial cysts, general/diffuse heterogeneity, other nonspecific findings, etc.):

→ ZOOMED in CINE centered on endometrium

→ Add color as necessary

**3. Technologist discretion**

→ Add other CINE as necessary

## **Ovaries:**

-Representative longitudinal and transverse views

-Measure size and document volume

-Document abnormalities:

For any mass that is not a simple cyst or non-complex involuting follicle:

→ Assess for color; if present, add spectral

→ CINE TV longitudinal and transverse (TA if TV not done or TA better shows abnormality)

*NOTE: Normal ovaries do not require CINE.*

-**DOPPLER:** Attempt to document arterial and venous waveforms for each ovary on all examinations

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→ Provide separate tracings for each arterial and venous waveform (i.e., not on the same image)

→ Please spend extra time documenting both venous and arterial waveforms if the indication is rule out torsion or the ovary is abnormal.

*\*\*NOTE, formal DUPLEX order/charge: must provide adequate documentation of waveforms or reason for difficulty if unable to provide adequate images\*\**

## **Adnexa, including fallopian tubes (if seen):**

-Survey both adnexa: greyscale and color Doppler

-Provide representative images of both adnexa: greyscale and color Doppler

-Evaluate for abnormalities and document relationship to ovary

-If abnormality is detected, including simple-appearing para-ovarian cyst and hydrosalpinx

→ Document size, position, shape and relationship to ovaries and uterus

-Attempt to include ovary/other pelvic structures to demonstrate relationship between adnexal finding and other anatomy

→ Assess color; if present, add spectral

→ CINE TV longitudinal and transverse that include mass and adjacent pelvic structures (TA if TV not done or TA better shows abnormality)

-If near ovary, add CINE with gentle abdominal pressure to show structures moving together or separate from ovary

*NOTE: Normal adnexa do not require CINE unless examination is to rule out ectopic pregnancy and no IUP present (IUP = at least gestational sac + yolk sac) – as per First Trimester OB protocol*

## **Cul-de-Sac:**

-Evaluate for presence of fluid

-Document amount of fluid and location: trace, mild, moderate, large

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-If = > moderate, evaluate Morrison's pouch for extent of fluid

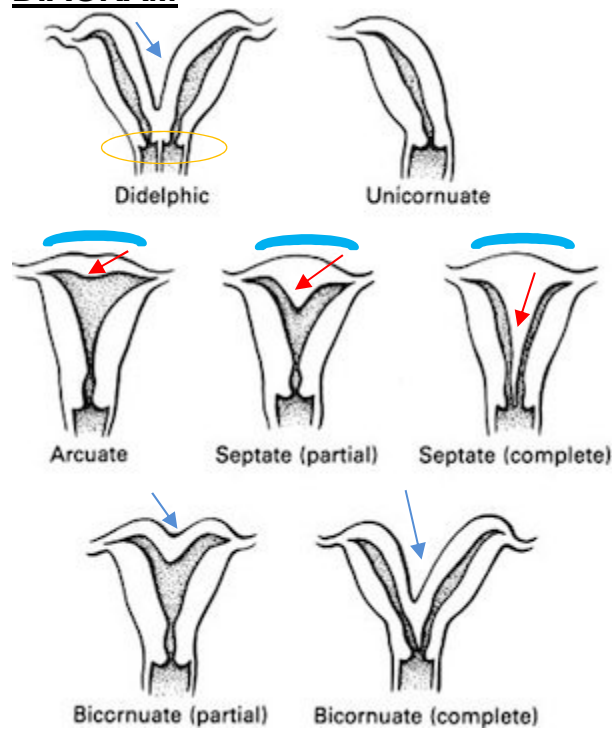
-Evaluate for mass

-Assess color; if present, add spectral



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## UTERINE MORPHOLOGY

### DIAGRAM



### **External contour**

-  Convex, flat or indented < 10 mm = arcuate or septate  
Endometrium concave < 10 mm = arcuate
-  Endometrium concave > 15 mm = septate  
Endometrium concave 10-15 mm = arcuate vs. septate





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Concave > 10 mm = bicornuate or didelphys

## **COMMENTS:**

→ **Arcuate** morphology is a normal variant that requires no treatment and has no effect on fertility

-Appearance: Mild indentation of the fundal endometrium with smooth overlying external uterine contour.

→ **Septate** configuration is a uterine anomaly that may require surgical treatment and has potential significant effect on fertility (anomaly most associated with spontaneous first trimester abortion)

-Appearance: Significant indentation of the fundal endometrium with smooth overlying contour

-Septum may continue into the endometrial canal, cervix and vagina

-Septum may be fibrous or muscular (looks like myometrium)

*\*\*It is very important to differentiate arcuate morphology from true septate configuration as these entities have very different effects on fertility and clinical management\*\**

→ **Bicornuate**: indented outer contour (>10 mm) with 2 separate uterine horns that join at some point

-Bicornuate bicollis = 2 cervixes (difficult to differentiate from didelphys uterus)

→ **Didelphys**: indented outer contour (>10 mm) with 2 *widely* divergent separate uterine horns that do not join

-Always 2 separate cervixes