

## ULTRASOUND EVALUATION ATTRIBUTES

### OBSTETRICAL ULTRASOUND EXAMINATIONS

First Trimester	Second & Third Trimester
<ul style="list-style-type: none"> <li>• Gestational sac measurement/CRL/YS</li> <li>• Cardiac motion</li> <li>• Fetal number</li> <li>• Uterus</li> <li>• Adnexa</li> </ul>	<ul style="list-style-type: none"> <li>• Fetal number</li> <li>• Presentation/ position</li> <li>• Amniotic fluid documentation</li> <li>• Placenta                             <ul style="list-style-type: none"> <li>• Location</li> <li>• Relation to internal cervical os</li> </ul> </li> <li>• Fetal measurements                             <ul style="list-style-type: none"> <li>• Biparietal diameter/head circumference</li> <li>• Femur length</li> <li>• Abdominal circumference/diameter</li> <li>• Est. fetal weight</li> </ul> </li> <li>• Fetal anatomy                             <ul style="list-style-type: none"> <li>• Cerebral ventricles**</li> <li>• Cerebellum <i>cisterna magna</i>**</li> <li>• 4 chamber view of heart</li> <li>• Spine**</li> <li>• Stomach</li> <li>• Renal region</li> <li>• Umbilical cord insertion site**</li> <li>• Urinary bladder</li> </ul> </li> </ul>

\* For ACR purposes, second trimester exams submitted should be between 18 and 26 weeks.

\*\* For ACR purposes, not required for Third Trimester Exams

### GENERAL ULTRASOUND EXAMINATIONS

Complete Upper Abdominal Exam
<ul style="list-style-type: none"> <li>• Liver                             <ul style="list-style-type: none"> <li>• Complete visualization of liver</li> <li>• Tissue texture</li> <li>• Vascular/ductal anatomy</li> </ul> </li> <li>• Gall Bladder and Biliary Duct                             <ul style="list-style-type: none"> <li>• Complete visualization of gall bladder in multiple views</li> <li>• Size of extra hepatic duct</li> </ul> </li> <li>• Pancreas                             <ul style="list-style-type: none"> <li>• Complete visualization of pancreatic bed in multiple views</li> <li>• Tissue texture</li> </ul> </li> <li>• Spleen                             <ul style="list-style-type: none"> <li>• Complete visualization of splenic bed &amp; region in multiple views</li> <li>• Tissue texture</li> </ul> </li> <li>• Kidneys                             <ul style="list-style-type: none"> <li>• Representative views</li> <li>• Renal length</li> </ul> </li> <li>• Doppler US utilized when appropriate</li> </ul>

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<b>Female Pelvis</b>	<b>Renal/Urinary Tract</b>
<ul style="list-style-type: none"> <li>• Uterus <ul style="list-style-type: none"> <li>• Size, shape, orientation</li> <li>• Endometrium</li> <li>• Myometrium</li> <li>• Cervix/vagina</li> </ul> </li> <li>• Adnexa <ul style="list-style-type: none"> <li>• Ovaries: Size &amp; shape</li> <li>• Ovary tissue texture</li> </ul> </li> <li>• Cul-de-Sac</li> </ul>	<ul style="list-style-type: none"> <li>• Kidneys <ul style="list-style-type: none"> <li>• Complete visualization in multiple views</li> <li>• Measurement</li> <li>• Tissue texture</li> </ul> </li> <li>• Urinary bladder &amp; adjacent structures <ul style="list-style-type: none"> <li>• Images of bladder lumen and bladder wall</li> </ul> </li> <li>• Doppler US utilized when appropriate</li> </ul>

<b>Small Parts</b>	
<b>Scrotum</b>	<b>Thyroid/Parathyroid</b>
<ul style="list-style-type: none"> <li>• Complete evaluation of testis</li> <li>• Tissue texture</li> <li>• Epididymis evaluation &amp; other peritesticular structures</li> <li>• Doppler when indicated</li> </ul>	<ul style="list-style-type: none"> <li>• Complete evaluation in multiple views</li> <li>• Tissue texture</li> </ul>

<b>Transrectal/Prostate</b>	<b>Pediatric Neurosonology</b>
<ul style="list-style-type: none"> <li>• Complete evaluation in 2 planes</li> <li>• Size</li> <li>• Tissue texture</li> <li>• Evaluation of periprostatic structures</li> </ul>	<ul style="list-style-type: none"> <li>• Complete evaluation in at least 2 planes</li> <li>• Tissue texture</li> </ul>

## VASCULAR ULTRASOUND EXAMINATIONS

<b>Peripheral Arterial Ultrasound</b>	
<b>Arterial Occlusive Disease</b>	<b>Bypass Graft</b>
<ul style="list-style-type: none"> <li>• Full length of arteries sampled</li> <li>• Spectral Doppler recordings obtained</li> <li>• Proper Doppler angle/angle adjustment utilized</li> </ul>	<ul style="list-style-type: none"> <li>• Full length of graft sampled</li> <li>• Spectral doppler recordings obtained</li> <li>• Proper doppler angle/angle adjustment utilized</li> <li>• Velocity documented in native arteries proximal and distal to graft</li> <li>• Velocities of proximal and distal anastomoses documented</li> </ul>
<b>Peripheral Vascular Ultrasound</b>	
<b>Thrombosis - lower extremities</b>	<b>Incompetence</b>
<ul style="list-style-type: none"> <li>• Complete evaluation of involved venous system with &amp; without compression                             <ul style="list-style-type: none"> <li>• Common femoral vein</li> <li>• Junction of common femoral vein with greater saphenous vein</li> <li>• Proximal, mid, and distal superficial femoral vein</li> <li>• Popliteal vein</li> </ul> </li> <li>• Complete evaluation of involved venous system with Doppler or color Doppler                             <ul style="list-style-type: none"> <li>• Common femoral vein</li> <li>• Junction of common femoral vein with greater saphenous vein</li> <li>• Proximal profunda</li> <li>• Proximal, mid, and distal superficial femoral vein</li> <li>• Popliteal vein</li> </ul> </li> <li>• Respiratory &amp; augmentation maneuvers with spectral Doppler</li> </ul>	<ul style="list-style-type: none"> <li>• Complete evaluation of involved venous system with &amp; without compression                             <ul style="list-style-type: none"> <li>• Common femoral vein</li> <li>• Junction of common femoral vein with greater saphenous vein</li> <li>• Proximal, mid, and distal superficial femoral vein</li> <li>• Popliteal vein</li> </ul> </li> <li>• Complete evaluation of involved venous system with doppler or color doppler                             <ul style="list-style-type: none"> <li>• Common femoral vein</li> <li>• Junction of common femoral vein with greater saphenous vein</li> <li>• Proximal profunda</li> <li>• Proximal, mid, and distal superficial femoral vein</li> <li>• Popliteal vein</li> </ul> </li> <li>• Respiratory &amp; augmentation maneuvers with spectral doppler</li> <li>• Spectral analysis of flow with color doppler                             <ul style="list-style-type: none"> <li>• Common femoral vein</li> <li>• Superficial femoral vein</li> <li>• Popliteal vein</li> </ul> </li> </ul>

<b>Thrombosis- upper arms</b>	<b>Vein Mapping</b>
<ul style="list-style-type: none"> <li>• Complete evaluation of involved venous system with color               <ul style="list-style-type: none"> <li>• Internal jugular</li> <li>• Subclavian</li> <li>• Axillary</li> <li>• Brachial (deep veins)</li> </ul> </li> <li>• Venous compressibility evaluated (except for suclavianvein)</li> <li>• Adequate spectral analysis with or without color doppler</li> </ul>	<ul style="list-style-type: none"> <li>• Complete evaluation of appropriate venous system including axial diameter:               <ul style="list-style-type: none"> <li>• Greater <u>or</u> lesser saphenous of leg <u>or</u></li> <li>• Cephalic vein of upper arm <u>or</u></li> <li>• Basilic vein of upper arm</li> </ul> </li> <li>• Color doppler and/or spectral analysis and proper doppler angle</li> </ul>

### CEREBROVASCULAR EXAMS

<b>Bilateral Duplex Carotid Ultrasound</b>
<ul style="list-style-type: none"> <li>• Transverse images of carotid vessels:               <ul style="list-style-type: none"> <li>• Common carotid artery - proximal</li> <li>• Common carotid artery - distal</li> <li>• Bulb</li> <li>• Bifurcation</li> </ul> </li> <li>• Longitudinal images of carotid vessels:               <ul style="list-style-type: none"> <li>• Common carotid artery - proximal</li> <li>• Common carotid artery - distal</li> <li>• Bulb</li> <li>• Internal carotid artery</li> <li>• External carotid artery</li> </ul> </li> <li>• Angle adjusted spectral Doppler evaluation:               <ul style="list-style-type: none"> <li>• Common carotid artery - proximal</li> <li>• Common carotid artery - distal</li> <li>• Bulb</li> <li>• Internal carotid artery- proximal</li> <li>• Internal carotid artery- mid and distal</li> <li>• External carotid artery</li> </ul> </li> <li>• Direction of vertebral flow documented with wave form</li> </ul>

## ABDOMINAL VASCULAR EXAMS

<b>Vascular US of the Liver</b>		
<b>Liver Vasculature</b>	<b>Liver Transplantation</b>	<b>TIPS</b>
<ul style="list-style-type: none"> <li>• Survey of liver vasculature with gray scale images</li> <li>• Images of vascular anatomy               <ul style="list-style-type: none"> <li>• Main portal vein</li> <li>• 3 hepatic veins</li> <li>• Inferior vena cava</li> </ul> </li> <li>• Spectral analysis with angle of insonation of 60° or less when appropriate:               <ul style="list-style-type: none"> <li>• Main portal vein (angle adjusted)</li> <li>• Hepatic artery</li> <li>• 3 hepatic veins</li> <li>• Inferior vena cava</li> </ul> </li> <li>• Color or power Doppler images for degree of patency:               <ul style="list-style-type: none"> <li>• Main portal vein</li> <li>• Hepatic artery</li> <li>• 3 hepatic veins</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Survey of liver vasculature with gray scale images</li> <li>• Gray scale images of vascular anatomy               <ul style="list-style-type: none"> <li>• Main portal vein</li> <li>• Hepatic artery</li> <li>• 3 hepatic veins</li> <li>• Inferior vena cava</li> </ul> </li> <li>• Spectral analysis with angle of insonation of 60° or less when appropriate:               <ul style="list-style-type: none"> <li>• Main portal vein (angle adjusted)</li> <li>• Hepatic artery</li> <li>• 3 hepatic veins</li> <li>• Inferior vena cava</li> </ul> </li> <li>• Color or power Doppler images for degree of patency:               <ul style="list-style-type: none"> <li>• Main portal vein</li> <li>• Hepatic artery</li> <li>• Hepatic veins</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Survey of liver vasculature with gray scale images</li> <li>• Images of vascular anatomy               <ul style="list-style-type: none"> <li>• Main portal vein</li> <li>• Hepatic artery</li> <li>• 3 hepatic veins</li> </ul> </li> <li>• Angle adjusted spectral Doppler tracings of:               <ul style="list-style-type: none"> <li>• Main portal vein (angle adjusted)</li> <li>• Hepatic artery</li> <li>• 3 hepatic veins</li> </ul> </li> <li>• Color or power Doppler images for degree of patency:               <ul style="list-style-type: none"> <li>• Main portal vein</li> <li>• Hepatic artery</li> <li>• 3 hepatic veins</li> </ul> </li> <li>• Color or power Doppler images of flow within the shunt</li> <li>• Angle corrected velocity measurements obtained in shunt:               <ul style="list-style-type: none"> <li>• Proximal</li> <li>• Mid</li> <li>• Distal</li> </ul> </li> </ul>

<b>Renovascular Ultrasound</b>		
<b>Renal Artery Stenosis</b>	<b>Renal Vein Thrombosis</b>	<b>Renal Artery Thrombosis (renal transplants)</b>
<ul style="list-style-type: none"> <li>• Appropriate long and transverse images, both kidneys</li> <li>• Renal length recorded bilaterally</li> <li>• Extrarenal exam includes bilateral angle adjusted images of main renal artery and ostial, mid, and hilar area.</li> <li>• Proper Doppler angle applied</li> <li>• PSV documented for appropriate sites</li> <li>• RAR recorded bilat; iliac artery evaluated (transplants only)</li> <li>• Spectral images documented upper/lower pole bilat</li> <li>• Spectral images sufficiently large for interpretation</li> <li>• Early systolic peak &amp; AI/AT documented (upper and lower pole)</li> <li>• Physician report appropriateness</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate images obtained, both kidneys</li> <li>• Renal length documented bilaterally</li> <li>• Renal arteries evaluated with color Doppler</li> <li>• Renal veins evaluated with color Doppler</li> <li>• Adjacent IVC evaluated</li> <li>• Representative spectral Doppler images included (essential in transplants)</li> <li>• Physician report appropriateness</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate images obtained</li> <li>• Renal length documented</li> <li>• Renal arteries evaluated with color Doppler</li> <li>• Renal veins evaluated with color Doppler</li> <li>• Comparison with adjacent, patent vessels documented</li> <li>• Representative spectral Doppler images included (essential in transplants)</li> <li>• Physician report appropriateness</li> </ul>

## DEEP ABDOMINAL VASCULAR EXAMINATIONS

### **Aorta**

- Transverse images with measurements:
  - Proximal
  - Mid
  - Distal
  - Bifurcation with measurements of both common iliac arteries
- Longitudinal images with measurements:
  - Proximal
  - Mid
  - Distal
- Bifurcation transverse or longitudinal
- Color Doppler and/or spectral analysis of distal aorta with proper Doppler angle
- Abnormalities documented
- Physician report appropriateness