

Ultrasound Protocol: Renal

Review by: Daniel Van Roekel, MD; Melinda Martinez, RDMS; Candice Baujan-Carr, RDMS; Maggie Roberts, MHL, RDMS
Last Reviewed: 10/8/2024 Link to: [General Imaging Requirements and Pathology Protocol PDF](#)

List of Required Images

Kidneys

All images to be included on both right and left

- **Sagittal** - Complete documentation with at least three gray scale images to include:
 - Lateral
 - Mid with and without length measurement
 - Medial
- **Transverse** - Complete documentation with at least three gray scale images to include:
 - Superior
 - Mid with and without color Doppler
 - Inferior
- (If not included in above images) for parenchymal comparison obtain a right kidney/right liver image and a left kidney/spleen image

Bladder

- Sagittal mid
- Transverse mid
- Attempt bladder jets in setting of obstruction
- Pre-void and post-void volumes should be measured if the indication includes any of the following: retention, urgency, frequency, UTI, very distended bladder

Prostate

- **Measure prostate volume** only if grossly enlarged (>30mL) or if the indication is retention, urgency, or other prostate related clinical indication

Additional Images for Cysts, Hydronephrosis, Hematuria, and Stents

For other pathologies (i.e., mass, abscess), use the [Pathology Protocol](#).

Cysts: When there are multiple simple cysts measure only the largest 1 in each kidney, if there is any complexity to a cyst, then evaluate completely per [Pathology Protocol](#).

Hydronephrosis:

- Measure renal pelvis AP diameter
- Add bladder image (do not need to do volume; show jet *only if readily seen*)
- Evaluate distal ureters at bladder.
- If full bladder, the patient should void. Then re-check for hydro.

Hematuria: If indication is for hematuria, transverse and longitudinal CINE through both kidneys (even if kidneys appear normal)

Stents: Attempt to visualize proximal and distal coils.

- images should be centered and horizontal, ovary images should be centered on screen.

- When using split screen, ensure that the perspective on both screens is the same – do not zoom or change depth on only one; both screens should have identical scales.
- Measurements of vessels should be taken at 90 degree angle to vessel wall.

Common Indications for Renal Ultrasound

- Flank and/or back pain • Hematuria • Follow up of kidney and/or bladder pathology