

**GUNDERSEN HEALTH SYSTEM ULTRASOUND DEPARTMENT  
POLICY AND PROCEDURE MANUAL**

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SUBJECT: Renal Ultrasound Exam  
SECTION: Radiology Ultrasound  
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**Scheduling:** One every 45 minutes. Patient should be scheduled in the P.M. if possible to allow NPO patients in the A.M. slots.

**Prep:** Drink one to two glasses of a non-carbonated beverage an hour before the test.

**Equipment:** Ultrasound unit with 3.5 MHz transducer. It may be necessary to have a unit with 2.5 or 5.0 MHz transducers.

**Exam Protocol:** With real-time ultrasound the kidneys and urinary tract are evaluated completely. The following is a description of the renal and urinary tract ultrasound exam:

**Kidneys** – The kidneys are evaluated in long axis visualizing the cortex and renal pelvis. The maximum length of each kidney is recorded. Transverse views of each kidney include the upper pole, the mid section including the renal pelvis, and the lower pole. The perirenal regions are evaluated for possible abnormalities. At times it may be necessary to evaluate the renal arteries and veins for patency.

**Urinary Bladder** – The urinary bladder wall thickness is evaluated. The lumen is evaluated for any masses or lesions. The distal ureters are evaluated for possible dilatation or other abnormality. When necessary post-void bladder residual volume is documented in long axis and transverse views

The sonographer will inform the radiologist of any structure not clearly seen during the ultrasound exam.

**Imaging Protocol:** Even though only specific images are documented, the kidneys and urinary tract are to be scanned in detail. The following images will represent the normal renal ultrasound exam (additional images may be necessary for proper documentation).

**Long RT kidney with maximum renal length measured (the measurement should be performed with the patient supine and LLD with the longest renal length recorded).**

Long RT kidney – 1 medial image

Long RT kidney – 1 lateral image

Transverse RT kidney – 1 upper pole image

Transverse RT kidney – 1 mid image (include renal pelvis)

Transverse RT image – 1 lower pole image

Longitudinal image of liver / RT kidney interface

Long distal abdominal aorta with AP measurement; if AAA seen then transverse measurement should also be obtained

**Long LT kidney with maximum renal length measured (the measurement should be performed with the patient supine and RLD with the longest renal length recorded).**

Long LT kidney – 1 medial image

Long LT kidney – 1 lateral image

Transverse LT kidney – 1 upper pole image

Transverse LT kidney – 1 mid image (include renal pelvis)

Transverse LT kidney – 1 lower pole image

Longitudinal spleen / LT kidney interface (when possible)

Long pre-void bladder with cranial-caudal measurement

Transverse pre-void bladder with AP and transverse measurements

Long post-void bladder (if needed) with cranial-caudal measurement

Transverse post-void bladder (if needed) with AP and transverse measurements

Post void residual bladder volume is measured on all male patients over 40 years of age, on pediatric patients when possible, on any patient with voiding symptoms, and on any other patient as requested.

### Indications for Color Doppler Evaluation of the Renal Parenchyma:

- Abnormal parenchyma
- History of pyelonephritis, UTI, glomerulonephritis
- Check for renal vein thrombosis
- Cineclips can be very helpful