Procedure Name: Renal and/or Renal Transplant

Updated 5/5/15

Indications:
May include but not limited to abdomen pain, hematuria, hypertension, palpable or suspected masses, follow up to prior exam, or any other valid medical reason. There are no absolute contraindications.

General Description:
This is a survey for renal and/or renal transplant.

Patient Preparation:
One hour prior to start of exam patient to drink 24 oz. of liquid

Equipment Selection and Settings:
Select ABD or Renal from preset menu
A curvilinear 4.0MHz probe will be used for most patients. The sonographer should use the preprogrammed setting for the appropriate body part and adjust gain, depth and transmit zone settings to optimize images. Fill out any applicable impression or worksheet upon completion of exam.

Imaging Sequence:
The following imaging sequence is for a normal exam. Include additional images of pathology to demonstrate dimensions in three planes, texture, size, shape, and relationship to adjacent anatomy. Utilize color Doppler as needed.

1. Image patient data (demographics page).

RT KIDNEY
2. Long mid RT kidney (length measurement).
3. Transverse RT kidney (TRANS and AP measurements)
4. Long RT kidney medial
5. Long RT kidney lateral
6. Trans RT kidney superior
7. Trans RT kidney inferior
8. Acquire Doppler image of RT kidney for perfusion
9. If visible, evaluate ureter

LT KIDNEY
10. Long mid LT kidney (length measurement).
11. Transverse LT kidney (TRANS and AP measurements)
12. Long LT kidney medial
13. Long LT kidney lateral
14. Trans LT kidney superior
15. Trans LT kidney inferior
16. Acquire Doppler image of LT kidney for perfusion
17. If visible evaluate ureter

**Urinary bladder**
18. LONG mid bladder
19. LONG RT lateral bladder
20. LONG LT lateral bladder
21. TRANS superior bladder
22. TRANS inferior bladder (include urine jets bilateral)
23. If physician orders post void volume, need to measure bladder for both pre- and post-void volume (volume is calculated by 3 dimensional measurements)

**LONG AORTA through bifurcation**
LONG IVC

**Renal transplant**
If exam ordered is for renal transplant, then above (renal) procedure is performed for native kidneys as well as the following additional images for the transplant kidney.
1. Long mid transplant (length measurement).
2. Transverse mid transplant (TRANS and AP measurements)
3. Long transplant medial
4. Long transplant lateral
5. Trans transplant superior
6. Trans transplant inferior
7. If visible evaluate ureter
8. Acquire color Doppler image of transplant for perfusion
9. Measure resistive index (RI) of arcuate arteries at:
   - Upper pole
   - Mid pole
   - Lower pole
   Normal waveform is low resistance, brisk upstroke and continuous diastolic flow. RI should be .6 -.8.
10. Measure PSV (angle corrected) in main renal artery at proximal, mid and distal (should be <200 cm/sec, provided iliac artery is normal).
11. Color and spectral Doppler of main renal vein
12. Color Doppler and PSV (angle corrected) of iliac artery proximal to anastomosis of transplant renal artery.
13. Image for presence of perirenal fluid.