INDICATIONS:

Determination of renal size, split function location, or anatomy.
Evaluation of infection, acute and chronic.
Evaluation of recurrent infection, pyelonephritis, scarring.
Evaluation of renal trauma, tumor, or cyst.

*Exams ordered for indications which are not listed above need to be discussed with the Nuclear Medicine Physician.

SCHEDULING:

1. Instructions to Patient:

   a. The patients should know that they will initially be in the Department for injection and some initial flow images, and will return approximately 2-3 hours later for imaging. The late imaging will take approximately 90 min.

   b. When scheduling the patient, instruct the patient to arrive at the clinic well-hydrated (i.e., push fluids unless restricted).

   **Note**: Do not schedule patient for renal scan after IVP (same day).

2. Lab:

   BUN and creatinine should be obtained.

3. Image Correlation:

   Any previous images of the kidneys to include renal scintigraphy, ultrasound, CT, MRI, etc. should be obtained for comparison.

RADIOPHARMACEUTICAL:

Technetium-99m glucoheptonate, 10 mCi intravenously.
Children are dosed by weight.
(Tc-99m DMSA is the preferred agent (if available) for cortical imaging - see separate protocol # 6.4.)

**PATIENT PREPARATION:**

1. Instruct the patient to drink two 12-ounce glasses of water during the two hours before imaging. Do not give this instruction to patients who have been placed on fluid restriction by their doctor.
2. Have the patient void before beginning the study.

**EQUIPMENT AND PREPARATION:**

1. **Gamma camera:**
   a. 20% window centered on 140 keV.
   b. Low energy, high resolution.
   c. Pinhole collimator may be requested.
   d. Label all studies Renal. DMSA.

**PROCEDURE:**

1. With the patient supine, administer the dose as a bolus in a large vein, if possible. Acquire using the MAG3 renal protocol.

2. Begin delayed images 2 hours post injection.

3. With the patient in a supine position, obtain 10-minute acquisitions from the anterior, posterior, left posterior oblique, and right posterior oblique projections. Use wedges to obtain the posterior oblique images. Use a zoom factor appropriate for patient size. Ask the Nuclear Medicine physician if pinhole images are required.

4. SPECT images should be obtained:
   a. (1) Collimator = Low energy high resolution.
      (3) Matrix = 128x 128
      (4) Angle range = 180°
      (5) Angle step = 3°
      (6) 30 sec/stop
      (7) Frame time = 30 seconds
      (8) Contour = yes.
   b. **Processing:** SPECT processing to be done on the imaging workstation.
REFERENCES:


Note:
This protocol is in agreement with the Society of Nuclear Medicine Procedure Guidelines Manual, 1997.