

RELATIVE GFR & ERPF: RENAL TX OR NATIVE KIDNEY SCAN  
UPDATED: APRIL 2010

CPT CODE: 78707

**Indications:** This is the routine right (%) versus left (%) renal function study. It is the preferred general function study in patients with serum creatinine value < 4 mgm %. These conditions include: vascular, renal, and collecting system diseases of many etiologies.

**Patient Prep:** Patient should be normally hydrated at the time of the study (this means 500ml (16 oz) of fluid in 2 hours, prior to study).

**Scheduling:** One hour of imaging time.

### Radiopharmaceutical

**& Dose:** 10 mCi ± 20% (8-12 mCi) Tc-99m-MAG-3. Adjust dose for patient weight per NMIS or weight table. Pediatric dose adjusted if <18 yrs.

**Imaging Device:** GE, MPS or Infinia with LEHR collimator, (Picker with LEHR as last choice).

**Data Acquisition:** Computer acquisition of the data is required using predefined protocol GatesRenal with camera under the table for native kidney and above the table for renal tx patient.

### Acquisition Procedure:

- A. Create patient.
- B. Acquisition protocol: GatesRenal
- C. This protocol will set up acquisition files:
  1. Pre syringe: Acquire syringe in holder for 3 seconds, 128 x 128 matrix
  2. Preinj: Acquire one-minute pre injection picture, 128 x 128 matrix
  3. Renafwt: Renal Flow, 240 frames at 1 sec/frame followed by 26 frames at 1 min/frame
  4. Post syringe: Acquire syringe and stopcock in holder for 3 seconds, 128 x 128 matrix
  5. Injsite: Acquire injection site image, 15 sec image, 128 x 128 matrix

**Imaging Procedure:** The patient should lie supine with the gamma camera beneath for native kidneys and above the table for renal tx scan. Rapidly inject 8-12 mCi Tc-99m MAG3 agent as a bolus, with a 10 cc saline flush. Start the computer at the time of injection, using predefined study. Collect data for up to 30 minutes.

### Processing Procedure:

Process using GE Renal Analysis first  
Enter appropriate data in the dialog box

\* For pediatric pts: Set pediatric state to "Yes" for pts under 6 yrs

Draw ROIs for kidneys, bladder, and aorta

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Select proceed

Screen-cap image that appears next. Renogram Processing Screen

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- Select Camera Based Clearance.
    - **Confirm or re-draw** injection site ROI

- Select Review icon
  - Select Renogram QC
  - Select Function QC
    - Screen-cap Function QC screen
    - Select Back

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- Select Dynamic Image Review
    - Screen-cap Dynamic Image Review screen

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- Select Renogram Review.
    - Screen-cap Renogram Review screen

#### Save and Exit protocol

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Select **Renal Uptake** protocol from USER applications  
 Enter data in dialog box  
 Adjust brightness of display images  
 Screen-cap uptake screen  
 Exit

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Select Renal Uptake protocol from USER applications.  
 Enter data in dialog box.

Set the current or all option for the window leveling tool to "current".  
 Adjust the 5-min flow images to desired brightness.  
 Set the current or all option to "Current" and adjust the 5 sec flow images to desired brightness.  
 Screen-cap uptake screen.

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**PACS:** Send to PACS all the save screen files plus the file named "Appended Images" under the Renal Analysis\_Results folder which is the 1-min/frame dynamic images.

**Interpretation:** In general, the flow study and GFR should parallel each other except in very acute disease.

**Comments:** A Nuclear Medicine staff or resident physician should be consulted to determine if additional views are indicated.

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#### Bibliography:

1. Shulkin BL, Mandell GA, Cooper JA, et al. Procedure guideline for diuretic renography in children 3.0. J Nucl Med Technol 2008;36(3):162-168.
2. Infinia GE Lasix Renal Protocols, acquisition and processing.
3. Society of Nuclear Medicine Procedure Guidelines