

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 \pm 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

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

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

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.

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:

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2. Infinia GE Lasix Renal Protocols, acquisition and processing.
3. Society of Nuclear Medicine Procedure Guidelines