

 <p>SELECT RADIOLOGY SOLUTIONS A Division of Radiology Imaging Associates</p>	GALLIUM SCAN		
	Approval: E. Alvarez, MD	rev:1	12/2025

Radiopharmaceutical: Ga67-Citrate

Dose: 6 mCi for infection localization; 12 mCi for tumor localization.

T1/2: 78 hours

Energy: 93, 184, and 296 keV

CPT: 78805 (limited area); 78806 (whole body); 78807 (SPECT)

HCPCS: A9556 (per mCi)

Indications:

Approved indications include, but are not limited to:

1. Whole-body survey to localize source of fever in patients with fever of unknown origin (FUO).
2. Detection of pulmonary and mediastinal inflammation/infection, especially in the immunocompromised patient.
3. Evaluation and follow-up of active lymphocytic or granulomatous inflammatory processes, such as sarcoidosis or tuberculosis.
4. Lymphomas.
5. Diagnosing osteomyelitis and/or disk space infection. ⁶⁷Ga is preferred over labeled leukocytes for disk space infection and vertebral osteomyelitis.
6. Diagnosis and follow-up of medical treatment of retroperitoneal fibrosis.
7. Evaluation and follow-up of drug-induced pulmonary toxicity.

Patient Preparation:

- Inform the patient of the possibility of the procedure taking up to 3 days to complete, depending on the indication.
- A high fiber diet is encouraged, so as to minimize bowel activity, especially in wholebody or abdominal scans.

Equipment:

1. Philips Skylight (MEGP or HEGP collimator)
2. Philips Forte (MEGP collimator)
3. Philips Vertex Plus (MEGP collimator)

Procedure:

1. Place an intravenous catheter in the patient's arm.
2. Inject ⁶⁷Ga-Citrate slowly through IV.
3. If **Irritable Bowel Disease** is the indication, perform an 8 cm/min wholebody scan at 3, 24, and 48 hours post reinjection. Ask radiologist for further instruction.
4. **Osteomyelitis of extremity:** Image area of interest in all pertinent projections at 48 hours post injection. A ^{99m}Tc-MDP bone could be done prior to the gallium scan and a Bone/Gallium ratio can then be found.
5. **Osteomyelitis of Lumbar Spine (Discitis):** Perform wholebody scan and then L-spine SPECT at 48 hours post injection.
6. **Interstitial Lung Disease:** Acquire wholebody scan at 48 hours post injection. Calculate a ratio of each lung to background (below the kidneys). A chest xray is required within 1 week of this procedure.
7. **For tumor localization,** acquire wholebody scans at 24 and 48 hours at 7 cm/min. At 72 hours acquire a wholebody SPECT from mandible to pelvis.

Acquisition Parameters:

Wholebody

- Matrix: High-Res.
- Zoom: 1.00 x (Full-Field)
- Scan Speed: 6 to 8 cm/min (depends on time post injection/patient's body habitus)
- Total Kcounts: 1500 to 2000
- Position: Supine
- Orientation: Feet First
- Display Mode: Variable
- Body Contour: Learn Mode

Statics

- Matrix: 256 x 256
- Zoom: 1.00 (Full Field)
- Total Time: 600 sec
- Total Kcounts: 250 to 1000
- Position: Supine
- Orientation: Feet First

SPECT

- Matrix: 128x128
- Zoom: 1.00 x (Full Field)
- Number of angles: 128
- Time per angle: 30 seconds
- SPECT mode: Step
- Orbit type: Non-circular
- Rotation direction: Counter-clockwise

Processing:

Wholebody:

1. Left click on 2 VIEW/4 VIEW WHOLEBODY DISPLAY from top menu in Pegasys.
2. Film up corresponding WB images to correct clinical indication.
3. Pan images so that top of patients skull is level across top of image.
4. Change color to GREY. Increase brightness as necessary.
5. Left click on pencil tool and select correct annotation defaults.
6. Left click on camera icon to snapshot the image.

Statics:

1. Left click on ALL IMAGE DISPLAY from top menu in Pegasys.
2. Select images to display and PROCEED,
3. Increase brightness as necessary for interpretation.
4. Left click on pencil tool for annotation defaults. Choose proper labeling, ensuring proper image orientation.

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5. Left click on camera icon to snapshot the image.

SPECT

1. Left click on AUTOSPECT from top menu in Pegasys.
2. Select all PROJECTION sets and PROCEED.
3. At top of screen, left click on OPEN. From listed defaults, choose BONE SPECT, change the method to Pegasys FBP with a Gaussian Filter. Set Cutoff to 0.14 and the Order to 15.5 – 18.0.
4. Ensure that all sets have the same reconstruction parameters.
5. Set yellow lines to outer limits of scan field and left click on RECONSTRUCT at top left of screen.
6. LEFT click on the SAVE page and save only the Transverse data for each image set, rename to TRANSVERSE_C, A, or P, depending on the data set displayed.
7. Perform motion correction as necessary.
8. LEFT click on IMAGE MANIPULATION-> IMAGE APPEND.
9. Select the reconstructed image sets starting at the lower end of the patient (i.e. TRANSVERSE_P, _A, _C). This will take a few moments to display.
10. EXIT and rename to RAW AXIAL, then SAVE.
11. LEFT click on MCD & MCD/AC PHYSICIAN'S REVIEW button across the top of the screen.
12. Choose the RAW AXIAL data.
13. LEFT click on 3D at the top of the display.
14. LEFT click on ON/OFF, and change the color to GREY.
15. LEFT click on SAVE under the CORONAL section on the right to create the coronal series. On the AXIAL image, left click and drag the green line to the posterior end of the patient. When the green dotted line is outside the patient, LEFT click on PROCEED. Drag to the patient's anterior, and select PROCEED.
16. Do the same for the sagittal image set, using the blue line and going left to right.
17. LEFT click on VOLUME.
18. In transverse view, middle click at center of patient and extend green line beyond body habitus.
19. At right of screen, change DEPTH to 64, and VIEWS to 32.
20. LEFT click on CREATE. This will take a minute or so, then left click on SAVE, and PROCEED.
21. LEFT click on CANCEL, CANCEL, and QUIT.
22. Reverse the AXIAL and SAGITTAL images. To do this, left click on PAGE 2 at top right of menu at top of screen on Pegasys. Left click on SPECT FRAME REVERSE. Select TRANSVERSE images, this will automatically proceed and then reverse the frames. When the images reappear, left click on EXIT, and then SAVE SELECTED AND PROCEED. Do the same for the SAGITTAL images.
23. Display a composite of all scan planes. Left click on REFRAME from top menu on Pegasys.
24. Select TRANSVERSE-R images and PROCEED.
25. Right click on SELECTION MENU and then right click on 2. Right click on SELECTION MENU again, then right click on 2 STANDARD.
26. Left click on the 24 VIEW image display (depending on length of scan). Ensure that anatomy of interest is completely included in display range.
27. Increase brightness as necessary for interpretation.

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- 28. Left click on the pencil tool, and then choose the proper annotation defaults. Ensure that the proper patient orientation is noted on the images.
- 29. Left click on the camera icon and snapshot.
- 30. Repeat steps 20 to 25 for CORONAL and SAGITTAL planes.
- 31. DICOM all saved images, as well as raw projection data (for SPECT), and to PACS.