GUNDERSEN HEATLH SYSTEM
NUCLEAR MEDICINE DEPARTMENT
PROTOCOL MANUAL

PROCEDURE: **RADIONUCLIDE VENTRICULOGRAM (RV)**

SECTION: **CARDIOVASCULAR 2.3**

ORIGINAL DATE: **4 - 3 - 00**

DATE REVISED: **1 – 31 - 20**

REVIEWED: **ANNUAL**

Refer to Policy Nuclear Medicine/Administration 1.45 “RBC administration procedure”

Indications	Evaluate ventricular regional wall motion.
	Quantitative ventricular ejection fractions
	Monitor cardio toxicity of chemotherapy.
	Differentiate pulmonary and cardiac causes of dyspnea.
Exam time length	1 hour.
Patient Preparation	None
Camera	May use large (40 cm) field of view camera with electronic magnification to a 25 cm field of view.
Collimator	LEAP or LEHR
Energy window	20% window centered at 140 KeV. (Confirm that the window is centered on the largest "peak or hill." The default is 20% low/ 20% high, see optional processing steps below to change window)
Radiopharmaceutical & Dose	Tc-99m-labeled red blood cells: Ultra Tag Kit. 25 mCi
Administration Technique	Injection technique: Flush method: 1. Move the patient's arm away from his/her side so the basilic vein is not compressed. 2. Remove tourniquet. 3. Rapidly inject labeled red blood cells. 4. Flush with 10 ml of saline.

MUGA ACQUISITION & ARCHIVING PARAMETERS

Time interval between tracer injection and imaging	2 min, proper gating should be established prior to injection.
Key Parameters: Name	LAO45, LLAT, ANT
Mode	L
Matrix	64 x 64
Zoom	2.57
Start Angle	0˚ LAO45, 270˚ ANT/LLT
Counts per view	5000 LAO45, 4000 ANT/LLT
Gating (Y/N)	Y
Gating frames/cycle	24
Patient position	Supine
Body Part	CHEST
Pt. Location	Feet first supine
MUGA Triggers: R to R window	15% PVC Threshold
Collimator	LEHR or LEAP
Energy	Tc140 10% window
Uniformity and COR	Y
EF Mode	Normal
Energy Range	Low
Energy Map Name	Tc99m
Prefilter Type	2 consecutive 9-pt smooths of ea frame + temporal smooth between frames.
Filter cutoff/power	
Attenuation correction Y/N	N
Normal database used Y/N	N
Screen caps to make	EF Summary Page
Send to FUJI	EF Summary Page
Send to Dr. Cardio	Complete exam w/ paperwork

RADIONUCLIDE VENTRICULOGRAM PROCESSING

1. Highlight patient name and make sure all data sets are there:

   Best Septal-LAO45
   ANT-LLT

2. Click 'All Applications". Click ↓ on Cardiac processing section. Click 'EF Analysis' container. Click 'start' button to begin processing.

3. Under 'Process' icon (computer screen icon). Click 'EF Automatic' button.
   a. LAO45 image will be displayed on the process screen, upper left corner.
   b. Adjust ROI to fit around left ventricle
      i. Use amplitude and phase images for guidance. ROI should fit comfortably around the LT ventricle on these images w/o touching.
   c. When satisfied, click 'Proceed' button to continue processing image.
   d. Review ROI, EF curve and data for accuracy.
   e. Next, Click 'Filter only' button
      i. This will bring up all three images and apply a smoothing filter for viewing aesthetics.

4. Under 'Review' icon (computer screen icon).
   a. Click 'EF Summary' button to bring up completed data.
   b. Create SCREENCAPTURE by clicking on Printer icon and click 'Save' button. (Take SCREENCAPTURE of this page using normal color mode.)

5. Once SCREENCAPTURES have been saved, click 'File' and 'Save and Exit'

6. Select whole patient study and send to 'Dr Cardio' by clicking button under transfer destination. Highlight SCREENCAPTURE ONLY and send to 'FUJI' the same as above.

7. Optional processing steps:
   a. After checking the trigger histogram window, confirm that the window is centered on the largest "peak or hill. The default is 20% low/ 20% high.
   b. If not centered correctly;
      i. Create an "asymmetric window" by typing in different percentages for the low and high window values to center window on the most prominent peak.