

**HACKETTSTOWN REGIONAL MEDICAL CENTER
CARDIO PULMONARY POLICY MANUAL
STRESS ECHOCARDIOGRAM**

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Effective Date: March 2010
Cross Referenced:
Reviewed Date: 02/16
Revised Date: 04/12

Policy No: 6.008
Origin: Cardio Pulmonary
Authority: Cardio/Pulmonary Manager
Page: 1 of 3

Purpose: A Stress Echo is a non-invasive test that combines two tests: a treadmill stress test and an echocardiogram. This test will help the cardiologist to evaluate the patient's cardiac condition related to:

- Irregular heart rhythms
- A decreased supply of blood and oxygen to the heart at rest as well as with exercise
- Left ventricular function pre and post exercise
- Overall level of cardiovascular conditioning
- How hard his or her heart can work before symptoms develop
- How quickly the heart recovers after exercise

Procedure:

To perform a Stress Echocardiogram a physician's order must be given. A cardiologist, a nurse, a non-invasive technician, and a stress technician must be present to perform a stress echo. All stress echoes will be performed in a timely manner via the Epiq C7.

Once the physician enters a task into Cerner the Cardiology Department will call the Cardiologist to schedule a time for the Stress Echo

The cardiology technician will introduce his or herself to the patient before escorting the patient to the stress echo area. Once in the stress echo room, the stress technician will explain the procedure to the patient. The technicians will proceed with the following:

1. Prepare the patient for the stress portion of the diagnostic test.
 - a. If the patients are not appropriately dressed, offer the patient a hospital gown and the privacy to change into it (utilize the bathroom if needed).
 - b. The patient's skin will be cleansed with alcohol preps and abraded with 4x4 gauze.
 - c. Male patients will be shaved in the area of the chest where electrodes will be placed.
 - d. Ten EKG stress electrodes will be placed on the patient's chest as follows:
 - -RA-Right arm, under the inside of right clavicle
 - -LA-Left arm, under the inside left clavicle
 - -RL-Right leg, lower right side of the rib cage
 - -LL-Left leg, lower left side of the rib cage
 - -VI-Fourth intercostal space, one inch right of sternum
 - -V2-Fourth intercostal space, one inch left of sternum
 - -V3-Halfway between V2 and V4
 - -V4-Fifth intercostal space, mid-clavicle
 - -V5-Halfway between V4 and V6, on the rib
 - -V6-Fifth intercostal space, mid axillary
 - e. Use the keyboard to enter the patient data.
 - f. Press 12 lead to print a 12 lead EKG. Print one with the patient lying still.
 - g. Secure the belt to the patient and repeat 12 lead EKG with patient standing still.
 - h. Document EKG's with "lying down" and "standing"
 - i. Use the manual blood pressure cuff to take the patient's blood pressure.

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2. Answer all patient questions or refer questions to the performing physician
3. Prepare paperwork:
 - a. Stress Test Form:
 - Patient name age, weight
 - Date
 - Medical record number
 - Attending physician and performing Physician
 - Patient medications, symptoms, and smoking history
 - b. Bruce Protocol
 - Patient name and date
 - Patient's heart rate and blood pressure
 - Patient's cardiac history, If known
 - Patient's activity level
 - c. Consent Form
 - Patient must read, print and sign, and date form before proceeding with test.
 - Technician and physician must sign as witness to the patient signature.
4. The technician will demonstrate the stress test process on the treadmill and return the treadmill to the slowest speed and the lowest grade before and after each test.
5. Prepare the patient for the Echo Imaging Procedure:
 - a. Lay the patient down on his/her side
 - b. Enter the patient data
 - c. Highlight stress preset to be used. A routine stress echo is preset "Stress Echo".
 - d. Plug in the gray cord into the Phillips Epiq C7 machine in the EKG Aux. Location. This allows the stress test machine and echo machine to communicate, (Note: if this is not working properly or is not hooked up properly you will not be able to acquire your images.
 - e. When the optimal Parasternal LAX image is seen on the monitor screen, press the ACQUIRE key.
 - f. Choose the parasternal view you like best by hitting the loop number that corresponds with the image.
 - g. Repeat the process with SAX, AP4, and AP2.
 - h. All four views will be available on the monitor to show the physician. If the images are acceptable, you may hit the ACCEPT STAGE key and the images will be stored and the machine will automatically set up for the next post-stage.
6. Page the performing physician for the test.
7. Once the physician has arrived he will assess the patient and begin the stress echo test.
8. Secure the blood pressure (B/P) cuff to the patient's arm. Take blood pressure at the end of each stage (take B/P at 2-21/2 minutes into each stage) and when requested by the physician.
9. Once the patient has reached the peak heart rate or his own limit, the physician will end the test. The treadmill will gradually slow down. The B/P will be taken at 30 seconds, 1 ½ minutes, 3 ½ minutes, 5 ½ minutes, and 7 ½ minutes (if possible). The standard recovery period is 8 minutes. If recovery continues beyond 8 minutes, continue to monitor the B/P every two minutes unless instructed otherwise by the physician.
10. Once the treadmill has stopped, immediately direct the patient to the stretcher to lie down for post images. It is important to do this quickly because the Optimal post images are obtained within 30-60 seconds.

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11. Acquiring IMPOST IMAGES:
 - a. **IMPORTANT:** You must obtain images in this order: PLAX, SAX, AP4 and AP2.
 - b. Press the Timer key when the pt stops walking then hit the ACQUIRE key on the right of the machine
 - c. Press the ENTER key **AFTER** several heartbeats of each view are seen. The machine will automatically change labeling of pictures.
 - d. Press ACQUIRE key again to stop the acquisition cycle.
 - e. Touch END ACQUIRE on the panel.
 - f. To choose the IMPOST image on each view, turn the rotary page control and touch the loop of choice. (Physician usually selects images).
 - g. When desired IMPOST images have been selected, press Accept Impost on the touch panel.
12. Editing Rest Images
 - a. After acquisition of all loops, touch EDIT REST
 - b. Highlight the LOOP you wish to replace
 - c. Touch DELETE LOOP on the panel
 - d. Follow procedure to acquire new loop
 - e. Repeat until all views are acceptable and then touch ACCEPT REST
13. Editing Post Images
 - a. If you are not satisfied with the images you chose, **DO NOT** touch accept
 - b. Touch EDIT IMPOST
 - c. Highlight the LOOP to replace
 - d. Touch DELETE LOOP on the left touch panel. The pages of IMPOST images will now be displayed on the monitor screen again
 - e. Turn the page control until the desired LOOP is seen and highlight the appropriate LOOP number
 - f. When images are acceptable, touch ACCEPT IMPOST. Views will automatically be displayed on the monitor and be sent to the optimal disk for storage.
14. The test is completed.
 - a. The physician will provide the patient with the preliminary report
 - b. The technician will disconnect the patient from both the Echo and Stress equipment
 - c. Remove the electrodes from the patient's chest
 - d. Provide the patient with towel and wash cloth
 - e. Offer the patient the bathroom to clean off ultrasonic gel and get re-dressed
 - f. Dismiss the patient
 - g. Finalize the task in Cerner and that will place a charge. Enter an order and charge for out-patient.
 - h. The report will be faxed to the non-staff referring physician. In-patients and out-patients reports will be sent to medical records to be scanned in Cerner.