

## Multi-Gated Acquisition (MUGA)

### About your scan

This handout explains a multi-gated acquisition (MUGA) scan. This scan shows how well your heart works when it is at rest.



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### What is a MUGA scan?

MUGA stands for *multi-gated acquisition*. A MUGA scan is a nuclear medicine exam that uses a radioactive material to detect and treat disease. It is a form of radiology because radiation is used to take pictures of your body.

### What does the scan show?

A MUGA scan tells how well the left *ventricle* (chamber) of your heart is pumping blood to the rest of your body. The results are given as a percentage called the *left ventricular ejection fraction* (LVEF). A normal result for a MUGA scan is an LVEF of 50% or higher.

### Why am I having this scan?

The LVEF will show your doctor how well your heart works when you are at rest. This scan is most often done when a patient is going to start chemotherapy treatment that uses medicines that may be toxic to the heart. MUGA scans may be done many times during your chemotherapy or after your treatment is done, to check on your heart health.

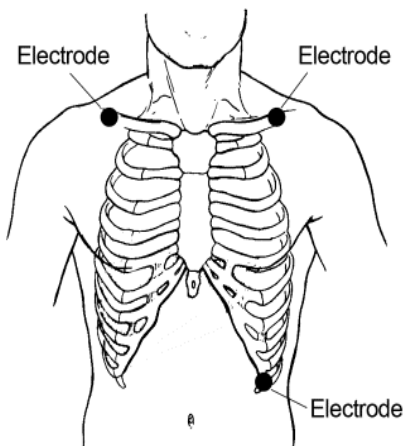
MUGA scans may also be done before a transplant or as part of a *clinical trial* (research study).

### How does it work?

- First, we will draw a small sample of your blood. We may use an *intravenous line* (IV), your *port-a-cath*, your *peripherally inserted central catheter* (PICC), or your *Hickman line*.



For this scan, you will lie on your back on an exam bed while the gamma camera takes images of your heart.



Three electrodes will be placed on your body, as shown in this drawing.

- The red blood cells (RBCs) from your blood sample will then be labeled with a low-dose *radioactive tracer* called Technetium-99m. It will take 20 to 30 minutes for your RBCs to be labeled. Please be patient during this wait.
- Your scan will be done in the imaging room. You will lie on your back on an exam bed. A *gamma camera* will be above your chest.
- Three small patches (*electrodes*) will be placed on your chest and belly (see drawing at left). These electrodes will record your heart's rhythm.
- The radioactive RBCs will be injected through your IV.
- As they travel through your bloodstream, the radioactive RBCs will give off *gamma rays*. The gamma camera will detect these rays and send images to a computer. The computer will produce clear pictures of your heart at work.
- The technologist will use the gamma camera to take 3 images:
  - 1 will be taken directly above your chest (*anterior*)
  - 1 will be taken at an angle (*left anterior oblique*)
  - 1 will be taken at your left side (*lateral*)
- It will take about 45 minutes to take the images.

### How should I prepare?

- Tell the scheduler if you have a heparin allergy or heparin-induced thrombocytopenia (HIT).
- *Women:* Tell your provider if there is any chance you may be pregnant.

### On Scan Day

You must lie still on your back while the gamma camera takes the images. Tell your technologist if you will have problems lying on your back for that long.

### If You Are a Woman of Childbearing Age

**Before** the tracer is injected:

- Tell the technologist if there is **any** chance you may be pregnant.
- We will ask if you are breastfeeding.
- We will again confirm that there is no chance you are pregnant.

## What to Expect

- You may feel slight discomfort where the IV is placed.
- There should be no side effects from the tracer.
- You do not need to follow any special radiation safety precautions after your MUGA scan.

## What happens to the radioactive tracer?

Drink plenty of water for 24 hours after your scan to help your body get rid of the tracer. Most of it will leave your body in your urine or stool. The rest will go away over time.

## Who interprets the results and how do I get them?

A nuclear medicine doctor will review your images, write a report, and talk with your provider about the results. Your own provider will talk with you about the results of your scan.

You may also read your results on your MyChart page. If you need copies of your images on disc, call 206.598.6206.

You and your provider will decide the next step, such as treatment for a problem, as needed.

## What does a MUGA scan image look like?

Here is an example of what a MUGA scan image looks like:

### Questions?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

- UW Medical Center -  
Montlake Imaging Services:  
206.598.6200
- Harborview Medical Center  
Imaging Services:  
206.744.3105
- UW Medical Center -  
Northwest Imaging Services:  
206.598.4240



*An image from a MUGA scan*