Transthoracic Echocardiogram (TTE)

What is an echocardiogram (“echo”)?
This is a test that uses sound waves to look at the heart. It is a safe and painless way to view the heart and its function.

How does it work?
A small device, called a transducer, is held against the chest. This sends sound waves that bounce off the heart.

A computer uses the data from the transducer to create a picture of the heart. The picture is shown on a TV screen. It can be saved on CD or printed on paper.

The echo consists of three techniques.

- **M-mode echo** – This is used to measure the exact size of the heart chambers. It makes a picture that looks like a tracing of the heart.

- **Two-dimensional echo** – This shows the true shape and motion of the different heart structures. These pictures represent “slices” of the heart in motion.

- **Doppler echo** – This allows doctors to see how the blood flows though the heart. The signals that represent blood flow are shown as a series of black-and-white tracings. They can be seen as color pictures on the TV screen. During a Doppler echo, you may hear a whooshing sound. This is not the sound of your heart. It is a signal that the machine sends.
**Why is the echo done?**
The echo test gives doctors useful information about the heart.

**Size of the heart.** The echo is used to measure the size of the heart chambers and thickness of the heart muscle.

**Pumping strength.** The test shows whether the heart is pumping at full strength or if it is weakened. It can also tell whether all the parts of the heart pump the same.

**Valve problems.** The echo shows the shape and motion of the heart valves. It can help tell if a valve is narrowed or leaking.

**Other uses.** The test may be used to see if there is fluid around the heart, blood clots, other problems inside the heart, or holes between heart chambers.

**Before your echo**
You do not need to do anything special to get ready for this test. You may eat and go about your normal routines, unless you are told otherwise. Make sure you wear a two-piece outfit. The echo may be done at the hospital or clinic.

**What happens during the echo?**
You will be asked to undress from the waist up and put on a short hospital gown. Electrodes (small sticky patches) are placed on your chest and shoulders to record your heartbeat.

You then lie on a special exam table. To take better pictures, a clear gel is applied to the area where the transducer will be placed. This may feel cool and a bit moist. The gel will be wiped off at the end of the test.

A technician moves the transducer over the chest to obtain many views of the heart. They may ask you to change your position. Air in your lungs can affect the echo pictures. You may be asked to exhale or hold your breath for a few seconds.

The pictures are recorded on videotape or printed on paper so the doctor can review them later.
**Bubble study with the echo**
A bubble study may be done during a TTE. It allows doctors to learn more about how blood flows through your heart, and your risk for stroke. For the study, a small amount of air is injected into the IV. You will not feel any different. You will be asked to “bear down” as if having a bowel movement (without emptying bowels) during the test. The tech will let you know when and how to do this. Not every echo includes a bubble study.

**How long does the echo take?**
An echo exam takes from 30 to 45 minutes. This depends on the number of views and whether the Doppler echo is also used. Be sure to allow extra time to check in. When the test is over, you may eat and return to your normal routine.

**Is the echo safe?**
The echo test is very safe. There are no known risks from the sound waves. The test is painless. You may feel slight pressure when the transducer is held against your chest.

**What are the benefits?**
The echo test gives information about the heart’s structure and blood flow without anything being put into your body.

The major drawback is that it is often hard to obtain good quality pictures in patients that have a broad chest, are overweight, or have a chronic lung disease such as emphysema.

**Your test results**
If a doctor is present during the test, you may be able to get the results before you leave or your own doctor will discuss the test results with you during a future clinic visit. The results of the echo test will help your doctor know how your heart is working and to come up with a treatment plan that is best for you.