

## Advance Cardiology Programs

### Echocardiography (ECHO)

As a parent, it's not unusual to worry if your child's doctor suspects a heart condition. But it can ease your mind to know that the advanced echocardiography team at Cook Children's is among the best in the Southwest.

Powerful imaging technology allows our heart specialists to see the entire heart, in great detail—including three-dimensional (3-D) images, allowing for in-depth evaluation. We can learn what is and isn't functioning and determine what needs repair with speed and accuracy.



#### Why choose Cook Children's for echocardiography?

Cook Children's has one the leading cardiac ultrasound programs in the state of Texas. The services we offer include state-of-the-art cardiac ultrasound (echo), transesophageal ultrasound (TEE), three-dimensional ultrasound (3-D echo), as well as maternal-fetal ultrasound (fetal echo).

These advancements in ultrasound mean our pediatric team can create images that detail the anatomy, or structure, of your child's heart. These images also show how the blood flows through the heart. These tests will help your child's doctor more accurately diagnose your child's condition and make informed decisions about the best course of treatment.

#### What is an echocardiogram?

A routine echocardiogram (echo) is ultrasound that is focused on the heart. It is very safe, painless and non-invasive, normally taking less than an hour to complete. A probe, along with contact gel, is placed on your child's chest, beginning over the heart. The sonographer proceeds through the test in an organized manner that has them image from the side, bottom (stomach) as well as from top (neck area) of the heart. The end result provides a highly reliable "picture" of your child's heart for a pediatric cardiologist to further provide results to your child's doctor.

#### Who gets an echo?

If your child's doctor has a concern about your child's heart, he or she may order an echo exam. There are some common reasons to have an echo, such as murmurs, abnormal EKG results, chest pain and/or shortness of breath. Echo is a very useful tool to help to rule out heart conditions and cardiovascular concerns. The majority of echoes result in normal findings, however, in the event that a concern or problem is found, your child's doctor will be made aware so that follow up care is provided for your child.

According to the American Heart Association, heart murmurs are often caused by defective heart valves. But not all heart murmurs are harmful. These are known as "innocent murmurs." Learn more here, and find out why an echocardiogram might still be needed.

#### What to expect

Parents are invited to stay with their child throughout a routine echo. It is also helpful if you prepare your child for the exam. Knowing what to expect usually lessens any potential anxiety. In order to get the best results from the test, it is beneficial for your child to be calm, still and cooperative. Please bring items that you know calm or entertain your child. Infants often do better while drinking a bottle or during nap time. Toddlers may do better if testing is performed during a favorite cartoon or listening to a favorite song or, if possible, during a short nap. Young children and teenagers do extremely well interacting with the sonographer as they are old enough to cooperate and understand that there is no pain or harm. Once your child's testing is completed, your and your child will be free to leave and await the results from your child's doctor.

#### 3-D echocardiography

3-D echocardiography gives your child's doctor a three-dimensional inside view of the heart and all of the intricate structures within it, in real time. The doctor can see a view of the heart as a whole, or look at very specific sections of the heart, and he or she can even see how it beats. For the surgical team, this helps them to see defects and lesions with more precision and to make more accurate surgical decisions. The 3-D echo can also be of great benefit to your cardiology team in cases where there are multiple defects or very small defects in the heart, valvular and vascular system that are difficult to detect, such as a tiny hole deep within the walls of the heart.

#### Transesophageal echocardiogram

Because the workings of the heart are very intricate, sometimes an transesophageal echocardiogram (TEE) is performed to get a more complete and precise "picture."

TEE uses sound waves to create high-quality moving pictures of the heart and its blood vessels. Because TEE is a type of echocardiogram (echo), it shows the size and shape of the heart and how well the heart chambers and valves are working.

- The size of the heart and how thick its walls are.
- How well the heart is pumping.
- If there is abnormal tissue around the heart valves.
- If blood is leaking backward through the heart valves (regurgitation) or if the valves are narrowed or blocked (stenosis).

In some cases, your doctor may use TEE to guide device placement in a cardiac catheterization lab, help prepare for surgery or assess a patient's status during or after surgery.

#### Who needs it?

Depending on your child's symptoms and medical history, your pediatric cardiologist may recommend a transesophageal echocardiogram (TEE) to help diagnose a heart or blood vessel disease or condition. TEE can be used for adults and children. Doctors may use TEE before, during and after surgery for:

- Coronary heart abnormalities
- Congenital heart abnormalities
- Endocarditis
- Cardiomyopathy
- Heart valve disease
- Device closure of heart defects in the cardiac catheterization lab

#### What to expect

Most people are anxious about any kind of medical exam. We will walk you through the process every step of the way so that you know what to expect, and we'll answer any questions you may have. Please don't hesitate to let us know if you have any concerns.

If the patient is a child, we recommend that you talk to your child before your appointment and explain, in an age appropriate manner, why they are having the procedure and how it will help them. Knowing this ahead of time can help to ease their fears.

Prior to your scheduled visit, you will receive a letter with the dates and times of your pre-admission and your procedure. You will also receive a call confirming your appointment. At that time, we will go over the procedure and any eating and drinking instructions.

On the day of your procedure, it is very important that you arrive on time. Since you will be admitted on the day of the procedure, we will need to do a pre-admission work-up that day as well. Please bring any medications you/your child are currently taking.

Just prior to the procedure, the patient will be given medicine to help him or her relax or sleep during the TEE. This helps the patient remain still so the doctor can safely insert the probe and take good pictures of the heart and blood vessels.

The doctor will insert the probe through the mouth, then gently guide it into the esophagus. The esophagus lies directly behind the heart.

The test typically takes less than an hour, after which the patient will be taken to a recovery area to be monitored.

Need help referring a patient?

Please call the International Patient Services department at +1-682-885-4685, send faxes to +1-682-885-2557, or email [international@cookchildrens.org](mailto:international@cookchildrens.org)