

Your Child's Heart Catheterization



Children's at a Glance

- Three hospitals:
 - Children's at Egleston
 - Children's at Hughes Spalding
 - Children's at Scottish Rite
- 16 neighborhood locations
- More than 550,000 annual patient visits
- Access to more than 1,600 doctors in more than 30 pediatric specialties
- Ranked among the top 10 pediatric hospitals by *Parents* magazine
- Named one of the best hospitals for children in the United States by *U.S. News & World Report*

The Children's Healthcare of Atlanta Sibley Heart Center

Congenital heart defects are the most common birth defect, affecting one in 100 newborns each year. Treating more than 30,000 children every year, the Children's Healthcare of Atlanta Sibley Heart Center has garnered widespread national recognition for our innovative treatments, leading-edge research and compassionate care. Ranked one of the country's top five pediatric cardiac programs by *Parents* magazine, the Children's Sibley Heart Center provides comprehensive cardiac services for congenital and acquired heart disease from infancy through young adulthood, as well as prenatal diagnostics. Visit www.choa.org/heart or call 404-256-2593 or 800-542-2233 for more information.

Having a heart catheterization (cath)

Your child's doctor has asked you and your child to come to the hospital for a cardiac catheterization, also known as a heart cath. This is a test to find out what kind of heart defect your child may have, the exact place it is in his heart and how severe it is. A heart cath is not an operation.

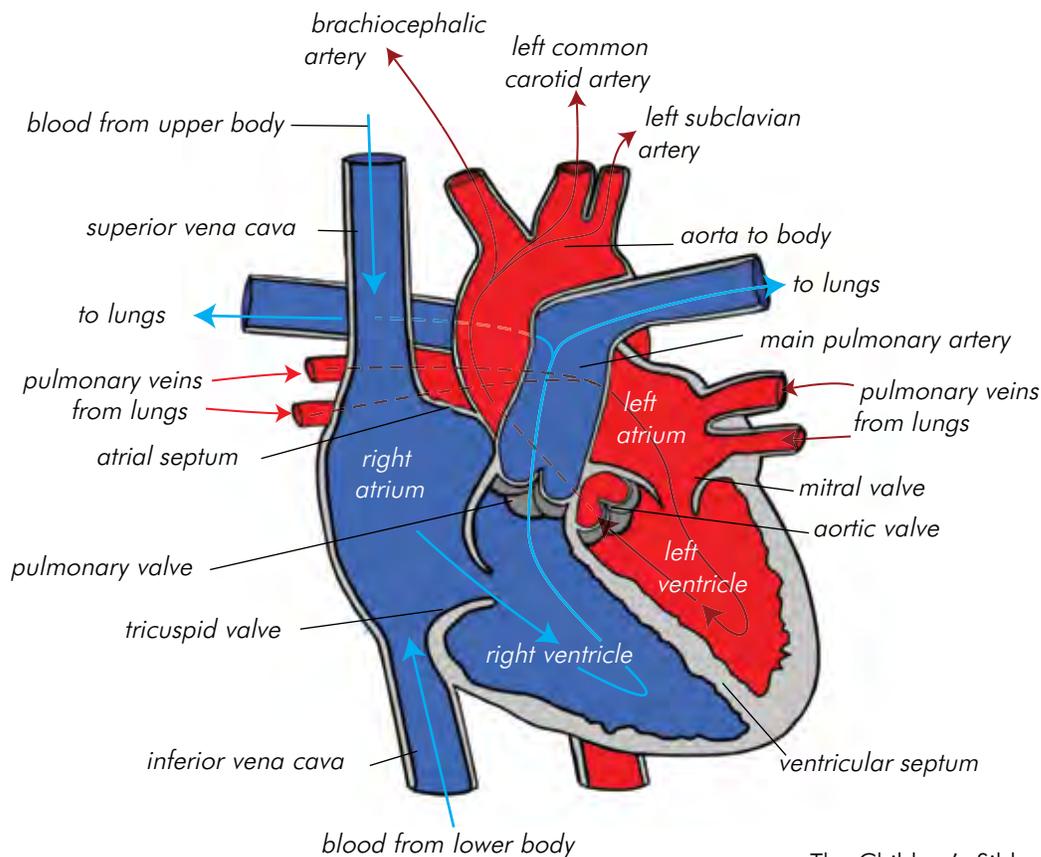
Sometimes your child's doctor will suggest that a nonsurgical treatment be done at the same time as the heart cath. Depending on your child's heart defect, this treatment can take the place of an operation or delay the need for an operation. These treatments are described on Page 5. Your child's doctor will talk with you about it ahead of time.

A look at your child's heart

Your child's heart is a muscle that acts like a pump (see illustration on this page).

- Blue blood (blood low in oxygen) comes from the veins throughout the body into the right side of the heart and flows to the lungs, where oxygen is added. The blood is now bright red.
- From the lungs, the blood flows to the left side of the heart and out the arteries. This brings oxygen to the body.

Your child's heart cath is done by a pediatric cardiologist (heart doctor for children) in the cardiac cath lab. The doctor puts small, thin tubes called catheters through a vein or artery in your child's groin (the area of the upper leg) that goes to your child's heart.



Getting your child ready for a heart cath

The evening before your child's heart cath, make sure he:

- Takes a bath or shower with soap. The area between the bellybutton and knees should be washed well.
- Does not put on powder or lotion after his bath or shower.
- **IMPORTANT: Stop eating and drinking at the “nothing by mouth” (NPO) time as instructed by the nurse the day before. This helps prevent an upset stomach during his heart cath. Infants need to be fed up to the NPO time.**

Make sure you:

- Plan to arrive at the hospital the morning of the test and go home later that day. Pack a bag if your child's doctor has told you that your child might stay overnight.
- Bring your child's favorite music to listen to during the test.
- Bring some fun things to help you relax while you wait.
- Arrive on time. Your morning will be busy, and you and your child may get home sooner.

Call the cardiac cath lab if any of the following occur within the three days before your child's heart cath date:

- Diaper rash in groin (crease area)
- Fever higher than 101°F
- Signs of a cold
- Taking antibiotics

Tests before your child's heart cath

Your child may need to have one or more other tests to get ready for the heart cath:

Chest X-ray

This is a picture of your child's heart and lungs taken on special film. The X-ray only takes a few minutes. It is important your child hold still for the X-ray.

Echocardiogram (echo)

During this test, sound waves show a picture of your child's heart on a screen and can check blood flow through his heart. The echo is done by placing a special wand on your child's chest. A record is made of the pictures.

Electrocardiogram (ECG)

This test shows the electrical activity (rhythm) of your child's heart. Electrodes (small, sticky patches) attached to wires are placed on his skin. The patches are taken off after the test. A machine records the pattern of your child's heartbeat. This pattern is studied by his doctor.

At the hospital

When you and your child come to the hospital:

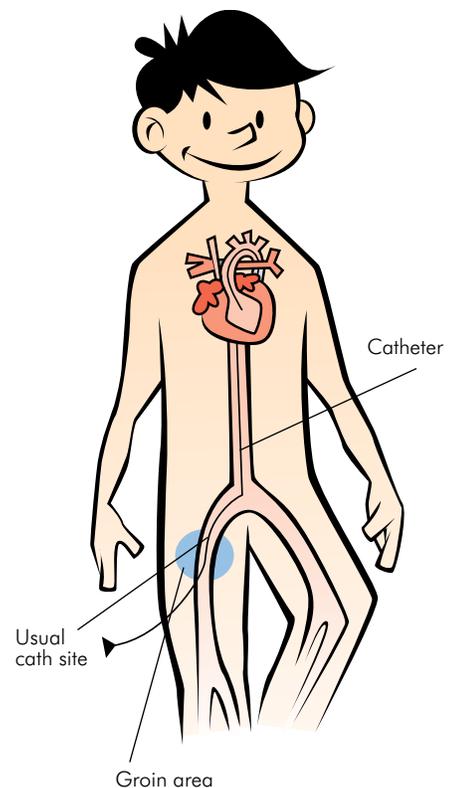
- Check in where you have been instructed to do so.
- Only two family members may wait in your child’s hospital room. Others may wait in the main lobby.
- The staff will:
 - Take your child’s pulse, temperature and blood pressure.
 - Measure your child’s height and weight.
 - Help him get ready for the heart cath.
- The doctor performing the heart cath will talk to you and your family before the heart cath.
- About an hour before the test, a staff member will give your child medicine to drink to make him sleepy. A white numbing cream is put on his leg where the catheter will be placed. The medicine and cream are used to keep the child sleepy and comfortable.
- If your child needs more medicine, it can be given in the cardiac cath lab. Your child needs to wear a hospital gown to the lab, but he can wear his own underwear and socks.
- Because your child may feel sleepy from the medicine, he needs to ride on a rolling stretcher to the lab. Your child should not try to get off the stretcher after taking the medicine.
- Wait for your child in his hospital room. The heart cath usually takes about two to four hours. It may take longer for interventional procedures. The nurse will tell you how your child is doing.

During your child’s heart cath

The cardiac cath lab staff will help your child move from his stretcher onto the X-ray table. Another table holds the equipment your child’s doctor needs for the test.

There are cameras around the table and monitors nearby. The cameras take pictures of your child’s heart from different angles as contrast (fluid seen by an X-ray) flows through it. The monitors show your child’s heartbeat and blood pressure and where the catheters are in his body. Once your child is on the X-ray table, a staff member will place patches on his arms and legs to watch his heartbeat.

If your child’s leg is being used for the test, the nurse also may raise his hips with some pads. The pads make it easier for the doctor to find your child’s vein and artery.



Your child will wear soft, wide bracelets on his arms and legs to remind him to keep still. It is important that your child stays quiet and holds still during the test.

A staff member will wash the area on your child's upper legs with a special soap. Your child will be covered with sterile towels to make a clean area for the doctor.

The doctor will give your child more numbing medicine at the heart cath area. It is given using a tiny needle. The white numbing cream he received earlier will keep this from hurting a lot. The numbing medicine should keep your child from feeling pain for the rest of the test. Your child may feel some pushing on his leg as the catheter goes in, but it should not hurt. If it does, your child should let us know so he can get more sedation and pain medicine.

Once the catheters are in place, the doctor will measure the pressures and oxygen levels in your child's heart. This part of the test does not hurt and takes about an hour. Your child can go to sleep or listen to music.

The last part involves putting the contrast into the catheter and recording it on moving pictures as it flows through your child's heart. He may hear noise made by the cameras. The contrast may make him feel warm, but this usually lasts only a few minutes. Taking some slow deep breaths may make him feel better.

When the doctor has all the information about your child's heart, the catheters will be taken out. A staff member will press on your child's leg for 10 to 20 minutes so the vein and artery will begin healing. We will wash your child's leg and apply a dressing or a bandage to keep the vein and artery from bleeding because there are no stitches. Your child can look at his leg before the dressing is put on so he can see that only a small spot was used for the test.

What to expect after a heart cath

Your child will return to his hospital room on the stretcher. He will stay in his hospital bed for several hours and keep the leg that was used during the test straight. This allows time for the vein and artery to heal.

- Your child may have something clear to drink, such as apple juice, when he wakes up. He should drink small amounts at first to keep his stomach from being upset. He may eat solid food when he is fully awake.
- His nurse will check on him often to make sure he is OK.
- Your child's doctor will talk to you after the test about the results.
- When possible, your child can go home on the same day about two to four hours after his test. This depends on whether a vein, or vein and artery, have been used for the heart cath.
- Before your child can go home, he must be awake and alert, and drinking liquids without vomiting. His pulse, blood pressure, breathing and temperature must be normal for his age.

If your child needs other nonsurgical treatment

Once the doctor knows the type of heart condition your child has, a nonsurgical treatment may be done before the catheters are taken out.

This type of treatment is called interventional cardiology and may avoid or delay the need for an operation. These can add at least one to two hours to his time spent in the cardiac cath lab. If your child has an additional procedure done, an intravenous (I.V.) line may be left in place after the heart cath to give him medicine or liquids.

If needed, your child's nonsurgical procedure may include:

Balloon angioplasty/valvuloplasty—A catheter with a balloon at its tip is passed into any narrowed area and is slowly inflated to try to widen that narrow area.

Coil occlusion—A small-coiled wire is placed through a catheter into an abnormal blood vessel to block its flow of blood.

Cryoablation—Using a special catheter, electrical energy is used to cool cells gradually that cause abnormal heartbeats.

Device closure—A small device placed by the catheter into an opening to block its flow of blood.

Patent ductus arteriosus (PDA) coil—A small-coiled wire is placed in the (PDA) to block this blood flow. The PDA is a small blood vessel between your large body artery (aorta) and your lung artery (pulmonary artery) that normally closes at birth or shortly after.

Radiofrequency ablation—Using a special catheter, hot electrical energy is used to get rid of abnormal electrical tissue that causes fast heart rates.

Stent—A stainless steel wire mesh tube is inserted through the catheter into a narrowed area to hold the area open when balloon angioplasty alone does not work.

Returning to your child's daily routine

Your child may return to his normal routine after his heart cath; however, he should not run, bike, skate, jump, swim or play contact sports for the next three days.

Most children do not need any pain medicine by the time they go home. If necessary, you may give your child acetaminophen (Tylenol, Tempra, Panadol). Do not give your child aspirin or ibuprofen (Advil, Motrin) unless a doctor says this is OK. Your child may go back to school the next day but may not take gym class for three days. Let us know if your child needs a physical education excuse letter. He may eat and drink as usual.

Care of the heart cath site

Your child's heart cath site may be tender or bruised.

- The bruising should go away after about one or two weeks.
- Keep the area clean and dry.
- Your child should not take a bath for the next three days. He may take a shower or sponge bath, but try to keep the cath site dry.
- Put an adhesive bandage, such as a Band-Aid, over the heart cath site area for the next few days. The bandage should be changed at least once a day and more often if it becomes wet or dirty.

Preventing infection

Instructions about preventing a heart infection called bacterial endocarditis will be given to you before your child leaves the hospital. Be sure you have this information before you go home.

When to call your child's cardiologist

Contact your child's cardiologist if there is:

- Excess bleeding. A small amount of blood on the bandage is normal.
 - If bleeding at the site soaks through your child's adhesive bandage:
 - Have him lie down.
 - Apply pressure until the bleeding stops.
 - Call the doctor.
 - If the bleeding does not stop after several minutes of holding pressure, call your child's doctor or the emergency department for further instructions.
- Fever higher than 101°F during the week after the heart cath.
- Redness, swelling, heat or liquid oozing from your child's heart cath site.
- Temperature or color on the leg that your child's heart cath was done is cooler or paler than his other leg.

Important phone numbers

The Children's Healthcare of Atlanta Sibley Heart Center Cardiac Call Center is available 24 hours a day, seven days a week.
404-256-2593 or 800-542-2233.

Cardiac Outpatient Services
404-785-6476

Glossary

Bacterial endocarditis—An infection inside your child’s heart that happens when bacteria (germs) enters the blood stream, travels to his heart and stays there.

Blood pressure—Measurement of the amount of force needed to pump blood through your child’s body with each heartbeat.

Cardiac cath lab—Location where heart caths are done.

Cardiologist—A doctor who specializes in the heart.

Chest X-ray—A picture of your child’s heart and lungs taken on special film.

Contrast—A clear fluid that is seen by X-ray.

Echocardiogram (echo)—A test that uses painless sound waves to show a picture of your child’s heart on a screen and can check blood flow through his heart.

Electrocardiogram (ECG)—A test that records the electrical impulses of your child’s heartbeat on paper.

Electrode—An adhesive patch hooked up to special wires that records electrical impulses from your child’s heart.

Heart catheterization (cath)—A test to find out the type of heart defect your child has, where it is located and how severe it is.

ICU—Intensive Care Unit.

Intravenous line (I.V.)—A small tube placed in a vein to give medicine or liquid.

NPO—Stands for “nothing by mouth” in Latin. When your child is NPO, he cannot eat or drink for a certain amount of time.

OR—Operating room.

Oxygen—Abbreviated as O₂. May be given to make breathing easier.

Pulse—The heartbeat felt at various points throughout your child’s body as blood flows through his arteries. This is felt on your child’s foot to check the blood flow following his heart cath.

Pulse oximeter—A machine that uses light to measure the amount of oxygen the blood is carrying through your body.

Sterile—Free from germs that may cause an infection.

Vital signs—Your child’s temperature, heartbeat, respiratory rate and blood pressure.



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