

What to Expect When Your Child Has a Cardiac Catheterization Procedure



A Special Place for Children

Welcome to the Heart Institute at Children's Hospital Los Angeles. Helping your child's heart is our top priority. We take pride in partnering with families to provide the best care possible. Your child is now being cared for by some of the world's leading interventional cardiologists, pediatric specialists, and caregivers.

Our team is here to support you and your child throughout the cardiac catheterization process. We realize the days leading up to this procedure can be a stressful time for your family. Knowing what to expect may help lower that stress.

The following information will serve as a guide for what may happen before, during, and after your time in the hospital.

If you have any questions or concerns, please feel free to talk with any member of your child's Cath Lab Team by calling (323) 361-4635.



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What is a Cardiac Catheterization?

This is a special procedure to help the doctor see inside the heart and improve or fix parts of the heart if your child needs it. While it is less invasive than open heart surgery, it still requires some recovery time. Many patients can go home within one day.

This procedure is done in a special operating room called the catheterization lab, also known as the cath lab. Your child will receive general anesthesia (medicine to help them sleep) for the procedure. The doctor will make a small puncture in the groin or the neck and will insert a soft tube into a large blood vessel there. This area will be numbed with medicine so it will not hurt when the soft tube is placed. Another thinner tube, called a catheter, will be guided into the heart through this site. Using x-ray video and a special dye called “contrast”, the doctors can measure the pressures in the heart chambers and take other very accurate measurements. All of this information helps the cardiologist decide what further care or interventions may need to be done.

After the heart catheterization, all the tubes are removed and a bandage is placed over the puncture site. This will help stop any bleeding. Your child is then taken to the Post Anesthesia Care Unit (PACU), also known as the recovery room, where they will be watched for 4-6 hours. Your child should be able to eat, drink, and move within the first few hours after their cath lab procedure.



Mending Hearts: A Family Guide Before Your Child Has Their Cardiac Catheterization

Before their catheterization, your child will first have a "Pre-Cath" appointment. During this visit, we will go over the procedure and what will be done to help your child.

Getting Ready for Cardiac Catheterization

- A nurse will contact you one week before the procedure to review medicine your child is taking. They will tell you which medicines to take or not take before the procedure.
- Your child's stomach **must** be empty before the procedure to make anesthesia as safe as possible. A nurse will call you before the procedure to tell you when your child should stop eating and drinking. These eating instructions must be followed **exactly**. If not, we will have to cancel or reschedule your procedure for another day.
- To prevent infections, it may be important your child sees a dentist before their procedure.
- Bring any "comfort" items for your child that may help them stay calm before and after the procedure. We have Child Life Specialists that have special training in child development. They can provide support and help your child understand what is going on in their body.
- The nurse will also tell you what time to be at the hospital and answer any questions.

Very Important: What If My Child Gets Sick?

If your child is sick in any way in the week before their catheterization procedure, please take your child to their pediatrician and call our Cath Lab office at (323) 361-4635.

What If My Child Needs Blood During the Procedure?

Blood transfusions are not common in patients who need a cardiac catheterization. However, your provider will tell you if your child may be at a higher risk of needing blood. If your child needs blood during or after the procedure, it will be prepared in our Blood Donor Center.

Call our Blood Donor Center at (323) 361-2441 for more information. You can also visit [CHLA.org/DonateBlood](https://www.chla.org/DonateBlood).

The Pre-Cath Visit

Many procedures first need a visit with the doctor who will perform the procedure. The pre-cath visit will be done with your child's Interventional Cardiologist or Cath Lab Nurse Practitioner, either in person in the Cardiology clinic or via telehealth. These providers will do a physical exam and review your child's medical history and medications. We will also share what to expect during the procedure. This is a great time to ask any questions you may have.

During this visit, the Cath Lab team may order a transthoracic echocardiogram (TTE) if your child has not had one done recently. A TTE is a non-invasive test that uses gel and an ultrasound machine to take pictures of your child's heart from the outside. Your child will not feel pain. This is an important test that guides what your child may need done in the Cath Lab.

You may be asked to sign paperwork to consent for your child's procedure when you feel your questions and concerns have been addressed.

If you have any questions about your child's pre-cath visit or cath lab procedure, please call our office at (323) 361-4635, Monday through Friday 9 a.m. to 5 p.m.



The Day of The Procedure

1. You will first go to the **Information Desk** in the main lobby for a pass. From there, you will be directed to **Admitting** and then to the **Surgical Admitting Area**. Here, you will be seen by providers who will do a physical exam on your child and answer any questions you may have.
2. You and your child will then be taken to the **Pre-Operative Area**. Once there, your child will change into hospital pajamas. The anesthesiologist (doctor specializing in managing your child's pain) will speak with you before the procedure. Your child may be given medicine to help them relax.
3. A nurse from our Cath Lab team will then take your child to the **Cath Lab** where the procedure will take place. One parent or guardian is welcome to come with your child to the outside of the cath lab. Visitors are not allowed inside inside the lab.
4. After your child has been taken to the cath lab, you will be directed to the waiting area. One of our nurses will call you with updates, so please keep your phone with you. Your Cath Lab doctor will also meet you there after the procedure.
5. After the procedure, your child will:
 - Go home from the recovery room several hours after the procedure

OR

 - Go home the following day after being observed overnight in CV Acute (a stepdown unit).
6. Some patients who are higher risk or who require closer monitoring may recover in our Cardiothoracic ICU (CTICU).



What Should I Know After My Child's Cath Procedure?

- Your child will be sleepy from the medicines. It may take some time for them to wake up. It is normal for them to feel nauseous after they wake up.
- Your child will need to lie flat for **four to six hours** to prevent any bleeding from the groin area where the puncture was made. During this time, they will not be able to get out of bed to use the bathroom, so the nurse will assist your child with a bedpan.
- **The puncture site:** your child will experience some pain around the puncture site (groin area or the neck). The site will have a dressing over it to prevent bleeding. This dressing needs to stay in place for up to one day, depending on the type of dressing. Instructions will be given to you before you go home.
- As soon as your child is awake, they may have clear liquids. If they can drink liquids without feeling sick, they may have regular food.
- Your child may have a sore or scratchy throat from anesthesia. A popsicle, cold water, or juice may help.
- Imaging tests may be done after the procedure to make sure your child is safe to go home. This might include x-ray or echocardiogram.



Once home, your child should feel close to normal. It is common over the next couple of days for your child to:

- Be slightly more tired than usual
- Feel sore or have bruising where the puncture for the catheter was made
- Have a low-grade temperature under 100.5F during the first 24 hours. You may give Tylenol (acetaminophen) as needed for the first 24 hours.

1st day after procedure: Walking and quiet play. Avoid running, climbing stairs, or kicking.

2nd day after procedure: Return to normal activities except **NO** sports such as soccer, biking, running, jungle gym, or bicycles. Limited physical activities are common up to one week and sometimes longer depending on your child's procedure.

Return to School

If your child is feeling well enough, they may return to school the next day (24 hours after the procedure). After 1 week, your child may return to gym/P.E. class, unless your doctor tells you otherwise.

Bathing Instructions

- Your child may shower the next day. Soap and water are ok.
- No submerging in water (no swimming or soaking) for 1 week.
- Change infants’ diaper more frequently the first 3 days to keep site clean.

Who do I call if I have questions or problems?

If you have any questions, please call your child’s Interventional Cardiologist. Please refer to the information below.

Cardiology Clinic (9 a.m. to 5 p.m.)	Call (323) 361-4635
Hospital (after 5 p.m., weekends, or holidays)	Call (323) 361-2450 Ask the operator to page the On-Call Cardiologist
Emergencies	Call 911 Or go to the closest Emergency Room (ER)

Your Cath Lab Care Team

There are many people on the cath lab team that will care for your child during their stay. Here are the team members you may meet:

Interventional Cardiologist

This is your cath lab doctor who is a specialized cardiologist who will perform your child's procedure in the cath lab and oversees the team that will be caring for your child before, during, and after.

Anesthesiologist

This doctor gives and monitors anesthesia (medicine that keeps your child asleep and comfortable) during the procedure and will meet you before the procedure in pre-op.

Cardiologist

Your child's usual heart doctor may visit while your child is in the hospital and will continue to see your child, as needed, after the procedure.

Nurse Practitioner

These specially trained nurses work with our doctors and the entire team to manage your child's care. As part of the cath lab team, they may care for you and your child:

- In the clinic
- Before, during, and after the procedure
- In the hospital, if they are admitted overnight



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Cath Lab Nurses and Techs

These individuals are experts in the cath lab and work with the doctors throughout the procedure.

Cath Lab Nurse Coordinator

This is the nurse who will call you to provide important instructions to prepare for your child's procedure. This person also works closely with the entire cath lab team.

Cardiology Fellow

Already fully trained as pediatric doctors, these providers are taking additional time to become trained as pediatric heart specialists.

Clinic Representative and Scheduler

This person will schedule your appointments with the cath lab team and may schedule your procedure. They will need information such as medical records, your child's address, date of birth, and insurance information. They will also work with your insurance company to get authorization for the procedure.

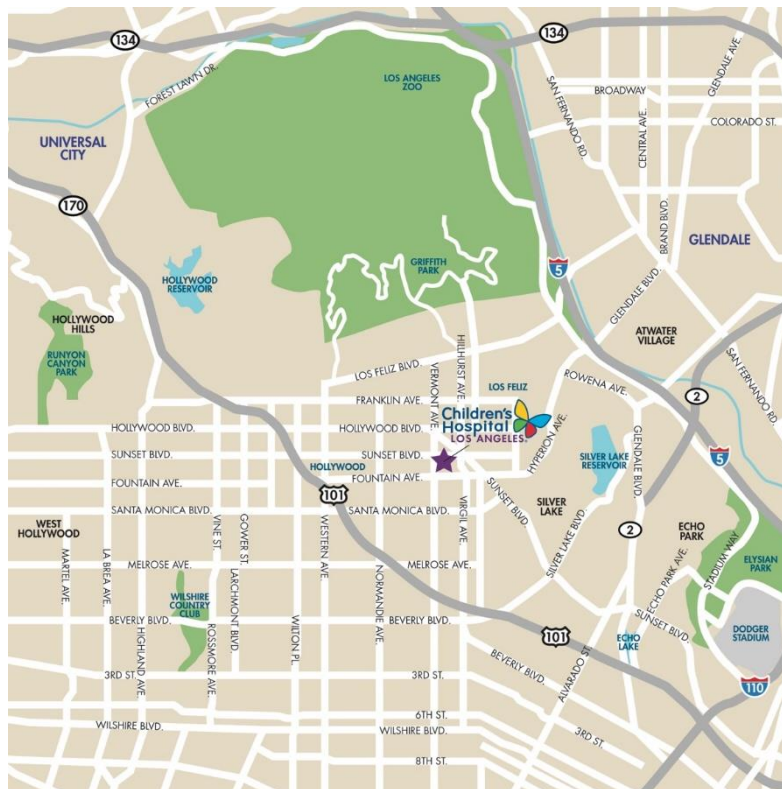
CHLA and Heart Institute Map

The Cardiac Catheterization Lab is part of the CHLA Heart Institute. The Cath Lab, CV Acute, PACU, Cardiac Clinic, and the CTICU can all be found on the 2nd floor in Anderson Pavillion.

Children's Hospital Los Angeles (CHLA) – Main Campus
Anderson Pavilion
4650 S. Sunset Blvd.
Los Angeles, CA 90027

You may first meet your cath lab doctor and cath lab nurse practitioner in the Cardiac Clinic.

You will check in at the main lobby on the first floor. Please do not hesitate to ask for guidance or directions.

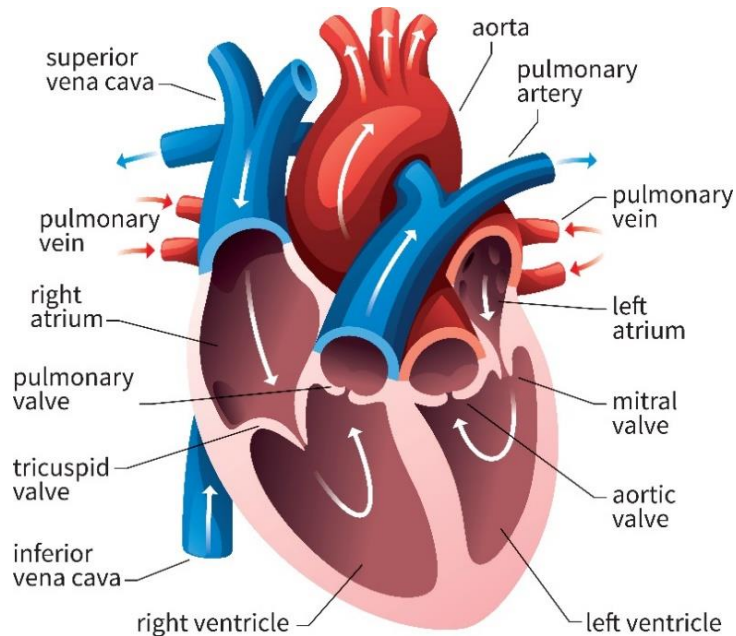


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A Normal Heart



The heart is a pump. It receives blood from the body and pumps it to the lungs where the blood receives oxygen and nutrients. The blood then returns from the lungs back to the heart, where it pumps it to organs such as the brain, stomach, kidneys, liver, and muscles. Sometimes, the heart is unable to pump efficiently due to a variety of problems. We can often improve the heart with surgery and medicines or with procedures done in the cardiac catheterization lab (cath lab).

Gathering Information

One of the first things your doctor will do during the procedure is take measurements of the heart. Using x-ray video and a special dye called “contrast”, the doctors can measure the pressures in the heart chambers and nearby blood vessels. This information helps the cardiologist decide what further care may need to be done to fix your child’s heart.

Interventions in the cath lab are done with devices introduced into the heart either temporarily or permanently. These devices are placed inside hollow plastic tubes, called catheters, designed for inside the body. The following are a few of the interventions your doctor may recommend depending on your child’s condition.



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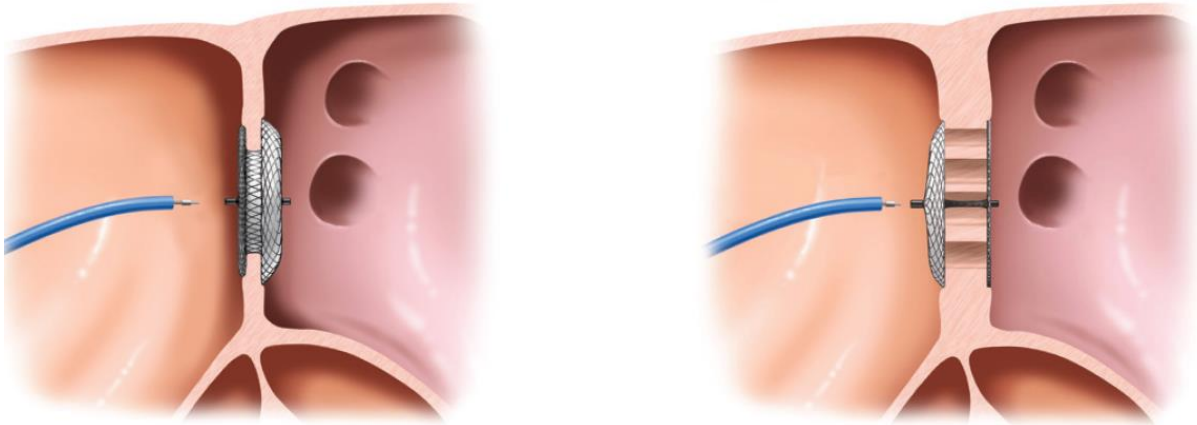
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Device Closure

This is done to close a hole between two chambers of the heart or correct other complex congenital heart defects that may have been present at birth.

The device is inserted into a catheter and moved along the blood vessel until it gets to the hole in the heart that needs to be closed. Once the device is in the hole, the doctors will confirm that it is correctly placed before releasing it. Once the device is released, it remains safely in the heart and helps the blood circulate more normally. This procedure usually takes two to four hours.



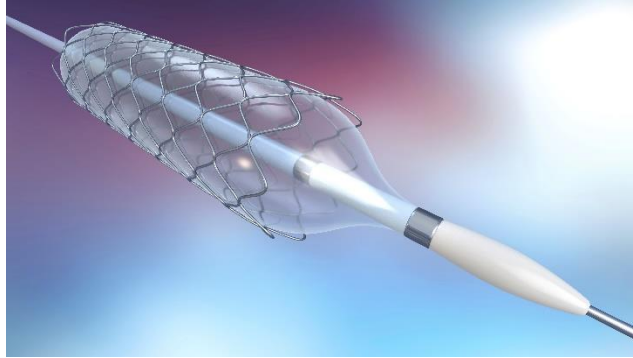
This is an ASD occluder. It closes the hole between the two upper chambers of the heart called the right and left atrium



This is a very small device that is used to close a patent ductus arteriosus (PDA), which is a connection between the aorta and the pulmonary artery.

Balloon (Angioplasty or Valvuloplasty)

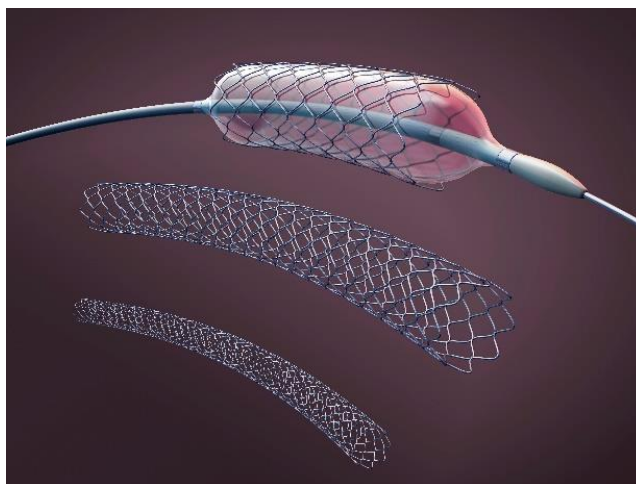
Balloons can be used to open and stretch narrow blood vessels or heart valves. Balloons are inserted into a catheter and moved along the blood vessel until it gets to the narrow part of the heart. The balloon is then expanded to the size needed for the narrowing. These balloons do not stay in the heart permanently and are removed at the end of the procedure.



This is a balloon shown expanded inside of a stent. Often, balloon angioplasty may be used to open a narrow area without needing to use a stent.

Stents

This procedure is done to expand a narrow blood vessel that may be kinked or bent. It may also be done *after* a balloon is used, to prevent the narrowing from happening again. As your child grows, they may need to have the stent expanded or a new stent may need to be placed to keep up with blood vessel growth. This procedure usually takes two to four hours.



Stents are placed to keep narrow areas open for a longer period of time. They are made of metal and come in many different sizes.

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Coil Embolization

In some patients with a congenital heart defect, the heart may grow more blood vessels than are needed. When this happens, it may make the heart work harder. Small devices called “coils” can be placed in these tiny blood vessels to close them off. These coils stay permanently in the body and improve blood flow and the way the heart works.



Coils are used in many places around the heart. Depending on your child’s specific heart condition, they may or may not need this intervention.

Transcatheter Valves

The heart has 4 different valves that help blood flow in the right direction and prevent blood from going backward. Sometimes, the valves in the heart are too small or are very stiff and don’t work properly. These valves can be replaced either with surgery or in the cath lab. A “transcatheter” valve is inserted in the cath lab and is delivered with a catheter in the groin. There are different types of valves depending on what is needed for each child’s heart.



This is one type of valve that can be placed in the heart in the cath lab.

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