CT Scan

At Children’s Hospital of Pittsburgh of UPMC, we believe parents and guardians can contribute to the success of this test, and we invite you to participate. Please read the following information to learn about the scan and how you can help.

Fast Facts About the CT Scan

- Computerized tomography (CT), sometimes called a CAT scan, uses X-rays and computers to create an image of the inside of the body. These detailed pictures are then put together by a computer.
- Because this test uses radiation, women who are pregnant or believe they may be pregnant are not able to stay in the exam room when the CT scan is being performed. In this case, please bring another adult who can stay with your child during the scan.
- Also, if siblings or friends accompany you to your appointment, because this test uses radiation, they cannot be in the exam room when CT scans are being performed. Please bring another adult who can stay with them during the scan.
- Dress your child comfortably, in clothes that are easily removed (sweatpants and a t-shirt, for example). Your child may be given a gown to change into for the CT scan, if required.
- Limit the use of jewelry (earrings, necklaces) and/or metal (zippers, snaps) in the area of scanning interest.
- Teenage patients who are pregnant or believe they may be pregnant should talk to their doctor before they have a CT scan. This information will be kept confidential. Some girls may be asked to complete a pregnancy test.
- If your child is unable to hold still for the entire scan, we can discuss with our doctors to see if your child can be given a liquid medicine by mouth to help them relax during the scan.
- If your child’s doctor has recommended sedation or general anesthesia for your child, we will work with the sedation/anesthesia imaging team to make the experience for you and your child as pleasant and safe as possible. Please refer to the patient guide, “Parent Information on Sedation for Radiologic Studies,” which is available online or from your child’s doctor.

What Is A Computerized Tomography (CT or CAT) Scan?

Computerized tomography scan is also called CT or CAT scan. The X-ray beam moves in a circle around the body. This allows for many different views of the same organ or structure, and provides much greater detail. The X-ray information is sent to a computer, which interprets the X-ray data and displays it in two-dimensional form on a monitor.

- At Children’s, we recognize that infants and children often need more time to become comfortable with imaging procedures than adults. As a result, we take the time needed for each child to feel at ease.
- And our imaginative décor, knowledgeable staff, and dedicated Child Life specialists help make your child’s experience as enjoyable as possible.

Safety

As a parent, you may have concerns about radiation exposure. Children’s Hospital takes every precaution to make sure your child is safe. CT uses ionizing radiation X-rays. Since children are more sensitive to ionizing radiation than adults, we strive to deliver the lowest dose possible to our young patients by using dedicated pediatric protocols developed by our experienced pediatric radiologists.
**CT Scan cont’d**

For these exams, we rely on “Image Gently” guidelines and use equipment and techniques adapted to give only “child sized” doses for CT scans.

- All of our radiography equipment, including plain X-ray and computed tomography (CT) units, is state-of-the-art and specially designed or adapted for pediatric use.
- We regulate and inspect our equipment regularly, to keep radiation exposure as low as reasonably achievable (the so-called "ALARA" principle).
- Advances in equipment and programs such as A.S.I.R. (Adaptive Statistical Interactive Reconstruction) have lowered the amount of radiation a child receives during the CT scan.
- Our goal is to do the test correctly and thoroughly, while exposing your child to the smallest amount of radiation necessary without compromising the image quality needed to make a correct diagnosis.
- When possible, parts of the body that are not being scanned will be protected with a lead apron.

**Home Preparation**

You may want to practice lying still with your child for periods of five to 10 minutes at a time prior to your child’s scheduled scan. This practice may help prevent your child from needing sedation medication.

You may want to bring along a “comfort” item — such as a favorite stuffed animal or blanket — for your child to hold during the scan.

Depending on what part of your child’s body is being scanned, there may be important instructions on things to do or not do the day before and the day of your child’s CT. Please follow the specific instructions given to you by your doctor before the scan.

Your child’s doctor may order sedation medication for your child, but it may not be needed. The Department of Pediatric Radiology staff will make every effort to relax your child through the use of music therapy, room decorations, and visual distraction during the scan, which can shorten your child's scan time and make sedation unnecessary.

**A Parent’s/Guardian’s Role During the Scan**

We welcome your help and support during this scan. One parent or guardian is invited to join your child in the exam room and scan room. Other adults and children must stay in the waiting area.

- If your child will be having sedation, you will be asked as the parent or legal guardian to sign a consent form before the sedation is given.
- The CT scan involves the use of radiation. Women who are pregnant or believe they may be pregnant will not be able to stay in the room for the exam. In this case, please bring another adult who can stay with your child during the scan.
- Also, if siblings or friends accompany you to your appointment, because this test uses radiation, they cannot be in the exam room when CT scans are done. Please bring another adult who can stay with them in the waiting area.
- The most important role of a parent and guardian during the test is to help your child stay calm and relaxed. It is important that your child remains still during the scan.
- The best way to help your child stay calm is for you to remain calm.
- You may bring a favorite toy or something else he or she finds comforting.
- We encourage you to talk to your child and hold his or her hand for reassurance during the scan.
- Please follow the instructions of the doctor, nurse, or CT technologist. They will show you where to sit or stand during the scan.
- You must wear a protective lead apron during the CT scan.
- At times during the scan, the staff will not be in the room with you, but an intercom in the room will allow you to talk to them, and vice versa.
- If your child starts to move or wakes up during the scan, please tell the medical staff by using the intercom.
- If an IV must be placed, you can help by reassuring and calming your child. Please tell the staff of ways that they might also help in keeping your child calm.
- Please do not distract the medical team or interrupt the scan in any way.
- We welcome your questions, but please ask them either before or after the scan.
- If your child needed sedation medication, you should gather all of your belongings after the scan is finished so he or she can be taken immediately to the recovery area. Your child will stay in the recovery area until the medication wears off. The length of time it takes the medication to wear off will vary, as some children take longer than others to become alert. The minimum amount of time spent in recovery is one hour.

If your child has any special needs or health issues you feel the doctor performing the scan needs to know about, please call the Department of Pediatric Radiology at Children’s before the test and ask to speak with a nurse. It is important to notify us in advance about any special needs.
CT Scan cont’d

Preparing your child beforehand, as well as comforting your child during the test, will help your child have a more positive experience. Sometimes it is difficult to know how to explain tests to children. If you have any questions about ways to prepare or support your child, or feel your child will have difficulty during the test, please call the Department of Pediatric Radiology at Children’s and ask to speak with the Child Life specialist.

The Test

The CT scan will be done at the Department of Pediatric Radiology of Children’s Hospital by a CT technologist specially trained to do CT scans on children. In the scan room, you will see the CT machine and a long table that will slide into the tube-shaped scanner where the camera is located.

- Your child will be asked to lie down on the table.
- The CT technologist will place a wide strap across your child’s waist to help your child remain still during the test.
- The CT technologist will place a lead cover over your child as long as it is not in the area being imaged.
- Once your child is in position on the table, the CT technologist will move the table into the CT scanner so that the right body part is under the camera.
- At times during the CT scan, the staff will not be in the scanner room with you, but will be in a room nearby where the equipment controls are located. They will be able to see you and your child through a large window and will be watching him or her continually during the scan. An intercom system will allow you to talk to them and vice versa.
- The CT scanner will make a humming sound or sound like a washing machine as it takes the pictures.
- Once the scan begins, your child will need to stay very still at all times to make sure the pictures turn out clear. Depending on his or her age, your child may be asked to hold his or her breath for a few seconds. Your child will hear a voice recording to “take a breath in” and then voice recording will tell your child “to breathe.”
- Depending on the scan your doctor ordered for your child, the CT scan may be done with or without a contrast agent. Organs and tissues being studied will be seen more clearly using contrast agent.
- The decision as to whether or not your child will receive contrast will be made by our pediatric radiologist who will be overseeing the test.
- Depending on the part of the body that the contrast is needed for, it will be given to your child either by mouth or through an intravenous line, or IV. placed in a vein in your child’s hand, arm, or foot, depending on his or her age.
- If your child must drink the contrast, he or she will be given three cups. The amount given depends on your child’s age and weight. Your child must drink each cup 30 minutes apart from each other.
- If your child is given the contrast through an IV, just after the contrast goes into the vein, he or she may feel a flush of warmth all over their body as well as in the back of his or her mouth. The warm feeling is normal and will go away shortly. This is a normal feeling.
- The IV contrast contains iodine. If your child has ever had a reaction to any contrast, or if he or she is allergic to iodine, please let your doctor and CT technologist know immediately.
- If your child has a contrast allergy, you will be given special instructions on premedication for your child prior to their CT scan.
- The scan usually takes about five to 10 minutes, depending on the body area or part that is undergoing the test.
- After the scan is complete:
  - If your child was awake during the CT scan and no IV contrast was given, our CT technologist or our nurse will direct you to your next appointment and or elevators to exit.
  - If an IV was placed for contrast, it will be taken out by our CT technologist or our nurse, and then you will directed to your next appointment and or elevators to exit.

After the Test

A report of your child’s scan will be sent to the doctor who ordered it, usually within 24 hours. If the results are urgent, the referring doctor will be contacted immediately. The ordering doctor will follow up with you regarding the results of the exam, usually within 24 hours of receiving them.

If your child did not receive sedation, then no special follow up care for your child is necessary.

If your child did receive sedation, please refer to the “Parent Information on Sedation” guide for follow up care.

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To see the list of all available patient procedures descriptions, please visit www.chp.edu/procedures.