



Children's Imaging Guide: **FLUOROSCOPY**



The Vecta Distraction Station is located in the David & Judy Hess Children's Imaging Center at Renown Children's Hospital.

The Vecta Distraction Station relaxes and engages the patient with multiple sensory stimulation. The mobile station features fiber-optic cable lights, a bubble column with varying colors, projected imagery, soothing vibrations and pure essential oil aroma therapy with different scents.

The **David & Judy Hess Children's Imaging Center** at Renown Children's Hospital was designed with the needs of children and their families in mind. Children's Imaging provides comprehensive imaging services to our youngest patients with a team specially trained in pediatric radiology. And we are proud to participate in Image Gently — a nationwide campaign working to reduce radiation exposure to children.

FLUOROSCOPY at the Children's Imaging Center

At the Children's Imaging Center we use fluoroscopy X-ray technology to determine the health of your child's urinary and gastrointestinal systems. Fluoroscopy allows healthcare providers to see the organs in motion — similar to an X-ray movie.

We provide the following fluoroscopy X-ray exams, tailored specifically to our youngest patients' needs:

- Upper Gastrointestinal (UGI) Series: An exam of the esophagus, stomach and the first section of the small intestine
- UGI with Small Bowel Follow Through: An UGI that includes an exam of the entire small intestine
- Contrast Enema: An exam of the rectum, colon and large intestine
- Voiding Cystourethrogram (VCUG): An exam of the urinary tract, bladder and kidneys

Although fluoroscopy exams carry a small risk due to radiation exposure, the benefits far outweigh the potential for any adverse effects. Furthermore, these studies may be the quickest, least painful, and most effective method for determining the cause of your children's health concerns.

If your child's doctor recommends any of these tests, our staff welcomes your questions at any time. Here's a glance at what you and your child can expect during fluoroscopy X-ray examinations.

UPPER Gastrointestinal Series

A UGI series shows how your child's esophagus, stomach, and the first section of their small intestine are functioning. The small bowel follow through provides a health picture of the entire small intestine. These exams help healthcare professionals accurately diagnose and treat illnesses affecting the gastrointestinal system.

Your doctor may recommend a UGI series or UGI with small bowel follow through if your child is experiencing:

- Abdominal pain
- Bleeding into the gastrointestinal tract
- Persistent vomiting
- Poor weight gain

WHAT HAPPENS DURING A UGI SERIES?

In the procedure room your child will change into a hospital gown, remove all jewelry and lie on the X-ray table so the radiologist can take a preliminary X-ray of their abdomen. Your child will then drink barium through a bottle, sippy cup or straw while lying on the table. This milky-white contrast agent, is safe for infants and children, and it helps the radiologist produce a clear picture of the esophagus, stomach and small intestine.

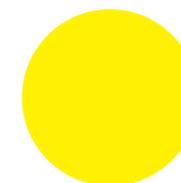
The radiologist will take X-rays while your child drinks the barium, repositioning your child on the table or gently pushing on your child's stomach to move the barium around. Your child stays awake through the procedure, which takes about 30 minutes to 1 hour. The X-ray camera won't touch your child.

A small bowel follow through takes a bit longer because the radiologist needs to see the barium travel through the entire small intestine, not just the first section of the small intestine — anywhere from 1 to 3 hours. After your child drinks the barium, the radiologist takes X-rays every 15 to 30 minutes. You and your child will remain in the waiting room in-between X-rays.

WHAT HAPPENS AFTER A UGI?

Your child is free to go home and resume usual activities and consume a normal diet. Make sure, however, that your child drinks enough fluids to prevent constipation. Note that your child's stools may appear white for a couple of days after a UGI series — this is normal and no reason for concern. If your child experiences constipation, a mild laxative can help. Talk to your doctor about which laxatives are right for your child.

A radiologist will review your child's X-ray images and give your doctor a written report of the findings. Your doctor, not the radiologist, will discuss the results with you.



PREPARING FOR THE EXAMINATION

Talk with your child about why a UGI series will help them. Describe in simple terms what happens during the procedure and the equipment used. Explain that the X-ray machine doesn't touch them and the test won't hurt, and you'll be there the whole time. As a precautionary measure, however, pregnant women cannot be in the exam room. If you are expecting, arrange for a family member or friend to accompany your child into the exam room.

The test is known as an upper GI series because it examines the upper section of the gastrointestinal tract.

CONTRAST Enema

A contrast enema uses fluoroscopy X-ray technology to view the rectum, colon and large intestine and how well they're functioning. The enema can show your child's large intestine and how it is working, and help determine the most appropriate treatment for your child.

A contrast enema (or barium enema) uses barium or a water-soluble contrast containing iodine to get a better picture of the rectum, colon and large intestine. Like barium, the water-soluble contrast is safe and effective for children and infants. Your child's doctor may recommend a contrast enema if your child is experiencing:

- Abdominal pain
- Change in bowel habits
- Chronic diarrhea
- Irritable bowel syndrome
- Rectal bleeding
- Severe constipation
- Unexplained weight loss

WHAT HAPPENS DURING A CONTRAST ENEMA STUDY?

As with a UGI series, your child will change into a hospital gown and lie on the X-ray table so the radiologist can take a preliminary X-ray of the abdomen. A small tube will then be inserted into your child's rectum, the length and width of which are determined by your child's age and size. Inserting the tube causes initial discomfort — but taking long, deep breaths will help your child feel better.

The tube connects to a bag with rectal contrast fluid, which is slowly released into the large intestine. During this process it is normal for your child to feel the need to have a bowel movement. Again, the radiologist may massage your child's stomach or instruct your child to roll from side to side to move the contrast fluid into better position as they take the X-rays. Additional routine X-rays may also be taken when the exam is complete.

Your child will be awake throughout the procedure. Brief discomfort or cramping is normal during the test, which generally takes 45 minutes to 1 hour. Contrast fluid is drained from the colon at the end of the X-ray.



AFTER THE STUDY

When the study is complete, your child can go home and resume their usual activities and normal diet. We encourage your child to drink plenty of fluids.

Your child's stools may appear white for a couple of days after the enema if barium is used. Your child's stool may also be loose for a day or two. This is normal and should not be cause for concern.

Our radiologist will review your child's images and provide a written report of the findings and diagnosis to the doctor who ordered your child's contrast enema. The doctor will then discuss the results with you.

HOW SHOULD I PREPARE MY CHILD FOR A CONTRAST ENEMA?

Talk with your child about why a contrast enema will help them. Describe in simple terms what happens and the equipment used, explaining that there will be some slight discomfort at certain points during the procedure. Remind your child you'll be there throughout the exam. Remember that pregnant women cannot be in the exam room where X-rays are taken. So you'll need to arrange for a family member or friend to accompany your child into the exam room if you're expecting.

If your child is on any medications, those can still be administered the day of the study. However, your child cannot eat or drink anything else before the procedure; the amount of time they must go without food and drink depends on their age. Staff will give you special instructions for your child's age and diagnosis when you schedule the appointment.

Please follow all directions or the study may need to be rescheduled.

Voiding **CYSTOURETHROGRAM (VCUG)**

A VCUG uses fluoroscopy X-ray technology to see the urinary tract, bladder and kidneys and helps find the cause for any changes in the flow of urine. The test is often used to check for vesicoureteral (VU) reflux, a condition where urine flows backward toward the kidneys.

Unfortunately, most children with VU reflux are born with it. Others develop the condition as a result of a bladder obstruction or blockage. A VCUG may be a good idea if your child has suffered a urinary tract infection, which is often the only reason to suspect VU reflux.

WHAT HAPPENS DURING A VCUG?

With the sensitive and private body parts involved in VCUG, our healthcare professionals understand the need for privacy and discretion. We want you and your child to feel as relaxed and comfortable as possible. Please don't hesitate to voice any concerns throughout the procedure.

First your child will change into a hospital gown and lie on the X-ray table. In most cases, the radiologist will take a preliminary X-ray. Then the radiologist or a nurse will wash between your child's legs and gently slide a small catheter coated with numbing gel into the urethra. Once the catheter is in place, a urine sample will be collected.

For clear images it's important that your child remain still and not touch their body below the waist. Otherwise the radiologist may need to repeat parts of the procedure. Our radiologists can assist you in distracting your child to help them keep still. In some cases, getting a clear picture may require sedation or anesthesia.

Next the radiologist will use the catheter to fill your child's bladder with contrast fluid. This helps illuminate the urinary tract. In some cases, VU happens only when urinating. Because of this, the radiologist needs to see how urine flows, and they'll take X-rays both when the bladder is filling and emptying.

During this process your child will feel the need to urinate. Generally infants will urinate on their own when their bladder is full. The radiologist will ask older children to hold it until the bladder is full and then urinate while images are taken. This way movement of the contrast fluid and urinary system can be monitored on-screen.

In total, the exam takes approximately 1-2 hours and the catheter will be removed when the study is completed.

WHAT HAPPENS AFTER A VCUG?

Your child may experience some discomfort or a stinging sensation during urination initially, and urine may appear pink — all of which is normal and will subside. Drinking extra fluids helps. Seek medical attention should your child have intense pain, fever or blood in the urine. Following the test your child can resume activities as usual.

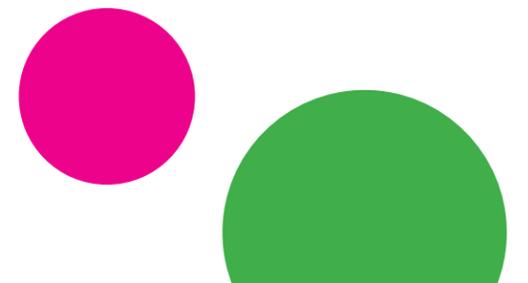
A radiologist will review your child's X-ray images and provide your doctor a written report of the findings. Your doctor will discuss the results with you.

HOW DO I PREPARE MY CHILD FOR A VCUG?

Talk with your child about why the test is important and how it will help them. Explain in simple terms what happens during the procedure, the equipment used and specifically why voiding, or emptying their bladder, is necessary during the study. Explain that the insertion of the catheter might feel uncomfortable at first, but once in position it will be painless.

A VCUG is performed in the morning, so there are no restrictions on eating or drinking prior to the exam. After checking in at the hospital, your child will change into a hospital gown in preparation for the scan. It's important that they also remove all accessories. Explain that buttons, zippers, clasps or jewelry may interfere with the imaging process.

Reassure your child that you or someone they trust will be there for them throughout the process. As with other fluoroscopy studies, you cannot accompany your child into the exam room if you are pregnant.





What Should I Expect the Day of my Child's **FLUOROSCOPY** Procedure

First, make sure your child adheres to any eating and drinking requirements specific to their exam. Take your child to Children's Specialty Care in the Sierra Tower at Renown Regional Medical Center at the appointed time. Bring a favorite book, toy, comforting object or personal electronic device to occupy your child during wait times.

Should I allow my Child to have a **FLUOROSCOPY EXAM** Even Though They Use Radiation?

Usually the benefits of these exams outweigh the small risk from the radiation. And a GI exam, contrast enema or VCUG may be the only way your doctor can learn the cause of your child's health concerns. Often these tests help solve problems faster and with less pain than other tests.

If You Have **QUESTIONS**

Talk to your doctor if you have questions about fluoroscopy testing. You can also speak with a radiologist when you schedule your appointment and before your child's exam. At any time feel free to simply contact **Children's Imaging** at **775-982-8100**. We are always happy to assist in any way we can.

ABOUT Image Gently Campaign

The Image Gently Campaign involves a group of healthcare organizations that want to promote safe, high-quality pediatric imaging throughout the world. The educational campaign, created by the Alliance for Radiation Safety in Pediatric Imaging, comprises more than 50 different societies, including the Society for Pediatric Radiology and the Pediatric Imaging Council of the Society of Nuclear Medicine. All combined they are a group of more than 700,000 healthcare professionals in radiology, pediatrics, medical physics and radiation protection. More information can be found at imagegently.org.

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