

Investigations

At some point during your child's treatment, he/she will probably need some tests to find out how well the kidneys, bladder and bowel are working. The doctor will organise the tests relevant to your child. Remember your child will not need all the tests listed.

X-Rays

An x-ray is a special picture, like a photograph, but it shows the doctor what is happening inside the body. Most of the x-ray machines are metal and very big, but it does not hurt to have an x-ray. The best way you can help your child is to be relaxed and calm, to talk to your child and help hold him/her still. Your child will have to keep as still as possible whilst the x-ray is being taken. It is a good idea to let your child bring a favourite toy, book or 'dummy' to keep him/her as happy as possible.

There are lots of x-rays with special names and each one looks at a different part of the body to find out what is wrong.

Barium Enema

This test is used to see why your child is having trouble with pooing. The x-ray doctor puts a small tube into the hole in your child's bottom (where the poo comes out) and runs a special liquid called barium into the colon (large bowel). Afterwards your child will go to the loo, to have a poo and get rid of all the air and barium. This test takes about 30 minutes. Your child will pass barium – this is quite normal. Encourage your child to have lots to drink to stop him/her getting constipated.

Barium Meal

This test is done if your child has something wrong inside the tummy. If your child is old enough he/she will have to drink a chalky liquid called barium which looks like milk. X-rays will be taken in different positions of his/her food pipe (oesophagus) and his/her stomach as he/she swallows the barium. If your child is a baby, a small tube may need to be put into your child's stomach.

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This test takes about 15 minutes. Your child will pass barium – this is quite normal. Encourage your child to have lots to drink to stop him/her getting constipated.

Bladder Pressure Studies (Urodynamics)

The purpose of this test is to measure the pressure inside the bladder. Catheters are passed through the urethra and into the bladder. Another catheter is passed into the back passage (rectum). One of the catheters is used to instill a special dye into the bladder, whilst the remaining catheters measure the pressures. Special x-rays will be taken whilst the bladder is filling and emptying. When the test is finished, all the catheters are removed. The test takes between 30 – 60 minutes. You will be allowed to stay with your child throughout.



Computer Tomography Test – C.T.

This test is used to show up soft parts the body, using x-rays and a computer. Your child will have to lie very still on a narrow table as it goes through a short tunnel. The test takes about 30 minutes and shows much more detail than ordinary x-rays. The doctor may give your child something to make him/her sleepy to help him/her lie still. He/she may also have an injection of a liquid called contrast, or a contrast drink that tastes like orange or liquorice. You will be allowed to stay with your child but will have to wear a protective apron.

Contrast Studies

This study is similar to a barium x-ray. Contrast is put in via a catheter into the distal stoma, to check the bowel prior to surgery.

DMSA Scan - Di Mercapto Succinic Acid Test

This test is done to find out how different parts of the body are working, especially the kidneys that make the wee. The doctor will be able to show if there are any scarred areas where the kidney tissue is not working properly.

Your child will have an injection into the hand or arm (usually a cream is used first on the area to be injected, to allow it to go numb so the needle doesn't hurt). The liquid that is injected into your child's vein contains a tiny amount of a radio-active substance, but it gives a smaller radiation dose than most x-ray tests. When it reaches the organ the doctor needs to examine, the special isotope camera sees the radioactivity and shows the doctor how well the organ is working, not what it looks like. This test can take between one and three hours.

Intravenous Urography – I.V.U.

This test may be done to look at the waterworks. The doctor injects a special liquid called contrast medium into your child's vein. A special cream will be used on your child's skin at the injection site so the needle does not hurt. The contrast medium shows up on the x-ray film as it passes through the kidney system. The test takes about 60 minutes. It is important to tell your doctor if your child has asthma, eczema or is sensitive to any foods or medicines. Otherwise he/she may have an allergic reaction to the special contrast medium.

Glomerular Filtration Rate – G.F.R.

This test is to accurately measure the kidney function. Two small needles are inserted into the hand or arm and a special dye is injected through one of them. This needle can then be removed. Blood samples are taken at regular intervals from the other needle, which will remain in place until the tests are finished. The test can take about five hours. When the test is finished the second needle will be removed.

Magnetic Resonance Imaging – M.R.I.

This test involves taking pictures of the body while your child is moved through a large imaging machine, like a space capsule or tunnel. Your child must lie very still, so some children may be given an injection to make them feel sleepy. There is no radiation involved, complicated pictures are made by detectors and a computer using magnetic energy. The machine is very noisy so your child may be afraid, but you will be allowed to stay with him/her and possibly talk through a microphone. You must not take anything metal, your watch or credit cards into the room. The test takes 30 – 45 minutes.

Urine (wee) Testing

Often you will be asked to get a wee specimen from your child. The nurse will explain how to do this – there are several methods. Sometimes the doctor will look at your child's wee under a microscope to see if your child has a water infection (Urinary Tract Infection – U.T.I.). The wee will then be sent to the laboratory for culture and sensitivity – this is to see which organism is causing the infection and which antibiotic will cure it. Children who have bladder and renal disorders may experience alterations in fluid and electrolyte balance therefore a wee specimen may be needed to check the electrolytes (normal components of body fluid such as sodium and potassium).

Rectal Biopsy

This is performed to see if your child has ganglia (nerve cells) in the back passage. The ganglion cells are needed along the length of the entire bowel to help to push the poo along the bowel and out of the bottom.

There are two different types of rectal biopsy used to diagnose Hirschsprungs Disease.

Suction Biopsy – this biopsy can be done on the ward using a small instrument which is passed into your baby's back passage, and the instrument is attached to a suction machine. A tiny piece of lower bowel is taken and sent to the laboratory where they can determine if the ganglion cells are present.

Strip Biopsy – this is usually performed under a general anaesthetic, as a larger piece of lower bowel may be needed to perform this investigation. There may be a little bleeding from the bottom after this biopsy.

Anorectal Manometry

This test is used by doctors to see how well the muscles in the anus and rectum (lowest part of the bowel) are working, and how much control your child has over these muscles when he/she tries to poo.



Endoscopy

An endoscopy is an examination of the inside of a hollow part of the body, using a special instrument like a telescope. In children these examinations are usually performed under a general anaesthetic and your child would probably have to come into hospital as a day case. Each examination has a different name, which depends on which part of the body the doctor is looking in to.

Cystoscopy – examination of the bladder

Sigmoidoscopy – examination of the lower part of the bowel

Colonoscopy – examination of the large bowel

Oesophagoscopy – examination of the oesophagus (tube leading from the mouth down to the stomach)

Gastrosocopy – examination of the stomach

Sweat Test

This test is performed so that the concentration of salt in sweat can be measured to diagnose Cystic Fibrosis. The test is usually performed on children who have had recurrent chest

infections, unexplained episodes of loose or pale poo, children who are not gaining weight or growing normally, or if a baby has been diagnosed with meconium ileus. The collection of sweat is usually made from the lower arm but occasionally the leg is used.

A small area of skin is cleaned with water and two gel discs are applied which are connected to a small electric current from a battery-powered device. The discs are left in place for about 5 minutes and contain a drug that stimulates sweating in the area of the skin in contact with one of the gels. Your child may get a tingling sensation but it is not painful. The discs are then removed and the skin cleaned and dried. A special collecting device similar to a wristwatch is strapped on to the stimulated area of skin and left in place for approximately 30 minutes. During this time your child will be able to move around freely. The sweat is then removed from the collecting device and taken to the laboratory to be analysed.

No special preparation is necessary for this test but remember, the whole procedure may take one hour, therefore it may be useful to bring along your child's favourite toy or book.

M.C.U.G. – Micturating Cysto - Urethrogram

This test is done to show the bladder and its outlet tube, and to see if urine goes backwards from the bladder (reflux) or if there is a blockage. This test takes about 30 minutes. A small tube, called a catheter, is put into your child's bladder, and a special fluid which can be seen on x-ray, is inserted through the catheter into the bladder. As the bladder gets full, your child will be encouraged to wee on the special table, and pictures will be taken whilst passing water. The catheter is removed after the test. Passing the tube can be a little uncomfortable and embarrassing. Once inside it is hardly felt. The best thing you can do is to talk to your child and encourage him/her to wee on the special table. After the test it may sting a little when your child wees. If your child has lots to drink the stinging will soon go away.

Plain X-ray

The film is made by giving your child very small doses of x-rays. Depending on which part of the body is to be x-rayed your child may have to sit or lie down, stand up or even lie on the tummy.

Transit Studies

These studies are performed to determine the length of time it takes for the food to pass through the body and out of the bottom, to see how well the bowel, in particular, is working.

Ultrasound - 'Jelly Belly' Test

This test is done to show the size and shape of many parts of the body, especially the kidneys. It makes pictures using sound waves and doesn't involve any radiation. The test takes about 10 minutes and it involves having a small amount of special gel applied to the skin around the area to be scanned. A round ended probe (like a big fat lollipop) is used to obtain the pictures, which you will be able to see on a TV-like monitoring screen.

