



Great Ormond Street Hospital for Children NHS Trust: Information for Families

DMSA scan with direct isotope cystogram (DIC)

This information sheet explains about the DMSA and direct isotope cystogram scans, what is involved and what to expect when your child comes to Great Ormond Street Hospital (GOSH) for the scans.

What is a DMSA scan?

A DMSA scan is used to assess the structure and location of the kidneys and to check how well the kidneys are working. It is also used to show any scarred areas in the kidneys that may not be working as well as they should. It works by injecting a substance called an isotope into your child's veins, which then travels to the kidneys. The scan is named after the chemical 'de mercapto succinic acid' or DMSA for short, to which the isotope is attached.

What is a direct isotope cystogram (DIC) scan?

It is used in children who have not yet been toilet trained to assess how the bladder empties. If your child is close to being toilet trained, we will suggest an alternative test. A direct isotope cystogram (DIC) shows whether urine is flowing back up the ureters to the kidneys (vesico-ureteric reflux) instead of out through the urethra as it should. A catheter (thin, plastic tube) is inserted into your child's bladder through the urethra. The bladder is then filled with the isotope mixed with water until your child's bladder is full and she wees.

Are there any alternatives?

Various types of scan such as CT, ultrasound and x-rays can show the size and shape of your child's kidneys but not how they are working. The DMSA and DIC scans are often carried out during the same appointment to give a fuller picture of how your child's kidneys are working. The results of the scans are then used to plan your child's treatment.

When you receive your appointment letters

You will receive two appointment letters – one for the DMSA part of the scan and one for the DIC part. If you are unable to keep these appointments, please inform the department at least two weeks beforehand. Sometimes, we can offer them to another child on the waiting list.



Before the appointment

If you are pregnant or think you could be pregnant, please let us know at least two days before your child is due to come to GOSH for the injection. There is a risk that the isotope given to your child could harm your unborn baby, so we advise you to organise another adult to help look after your child for the first 24 hours after the scan. If this is not possible, we may have to reschedule your appointment. If your daughter is 12 years old or older, we will ask her about her periods and any possibility that she could be pregnant.

Your child will need to have a five-day course of antibiotics after this scan, so it will be helpful to make an appointment with your family doctor (GP) or consultant to make sure you have a prescription ready. Inserting the catheter into the bladder can increase the risk of a urinary tract infection. If your child is not currently taking antibiotics to prevent urinary tract infections, he or she will need to take an antibiotic (trimethoprim) for five days, from the day of the scan onwards. If your child is currently taking antibiotics to prevent urinary tract infections, you will need to give double the dose for the next five days, either in one single larger dose or give an extra dose in the morning or evening.

The day of the scan

Please arrive at the Radiology (X-ray) reception desk at the time stated in your child's DMSA appointment letter. This is one hour before the injection is due to

be given, so your child can have local anaesthetic cream applied. This will numb the skin so the needle does not hurt so much. If your child is apprehensive or scared of needles, please telephone us beforehand and discuss your concerns with our play specialist.

If your child does not want local anaesthetic cream, please arrive at the time stated in the DIC appointment letter.

Your child will be able to watch a DVD during the scan, we have a selection but please bring along any favourites. It can also help if your child has a favourite toy to hold as well.

The DIC scan

Once your child has had the local anaesthetic cream applied, we will carry out the DIC scan first. Your child will need to be put onto the scanning bed so that the doctor can insert the catheter into your child's bladder through the urethra. This does not hurt but it may be a little uncomfortable. Once the catheter is in place, a small amount of isotope will be injected through the catheter, along with some salt water (saline) to fill up the bladder. When your child's bladder is full, she will naturally wee into the nappy while some pictures are taken. Depending on how soon your child wees, the scan can last up to 20 minutes.

When we have enough pictures, the catheter will be removed from your child's bladder. You will need to put a fresh nappy on your child and take her off the scanning bed.



The DMSA scan

Once the DIC scan has been completed, we will get your child ready for the DMSA scan. The radiographer or nurse will put a very small needle in your child's hand, arm or foot and inject the isotope. Immediately after the injection, he or she will remove the needle and put a plaster over the area.

It can take some time for the isotope to travel to the kidneys. We will give you a time to come back to the department for the scan itself and this will be between two to four hours after the injection. It is very important that you come back to the department on time. Otherwise the scan may need to be delayed or even cancelled.

If possible, try to keep your child awake between the injection and the scan as being a bit sleepy will help your child to keep still during the scan particularly if he or she is under five years old. Your child can eat and drink as normal in between the injection and the scan. You are welcome to leave the hospital to explore the local area. For ideas of things to do, please ask for a copy of our booklet *What to do in between appointments*, available from the Radiology department or the Pals Office.

Once you have come back to the hospital, please report to the Nuclear Medicine department. We will then call you and your child to come to the scanning room. He or she will need to get up onto the scanning bed, and lie very still while three pictures are taken. We will put sandbags around your child to help keep him or her still. Each picture can take up to ten minutes, but unfortunately, if your child

moves during this time, we may need to start that picture again. The scan itself takes between 30 minutes and an hour.

After the scans

If your child is not having any further scans or tests, you will be free to go home. The radiographer will send a report about the scan to your child's doctor.

Are there any risks?

There are no side effects to the scan. The isotope that we inject will not interfere with any medicines your child is taking. The isotope contains a very small amount of radioactivity, similar to the amount we receive from natural background radiation in about six months. This is not a danger to your child as the isotope becomes inactive in the hours following the scan. However, it is necessary to take some precautions for the first 24 hours after the scan, while the isotope is leaving your child's body. These are explained in the next section.

There is a risk that the isotope could harm an unborn baby, so please follow the instructions earlier in this leaflet to minimise these risks.



Going home

For the first 24 hours after the scan:

- Your child should drink plenty of fluids. This will allow the isotope to pass out through his or her body as quickly as possible.
- You should change your child's nappy frequently and dispose of the dirty nappy in an outside bin. Wash your hands thoroughly after nappy changing.
- If you are pregnant or think you could be pregnant, you should avoid close contact with your child and their bodily fluids, such as urine (wee), faeces (poo) and vomit.
- Your child should continue to take any medicines as usual. The isotope will not affect them in any way.

**If you have any questions,
please telephone the Radiology department on 020 7829 8625**

Notes

Compiled by the Radiology department in collaboration with the Child and Family Information Group

Great Ormond Street Hospital for Children NHS Trust
Great Ormond Street
London WC1N 3JH

www.goshfamilies.nhs.uk www.childrenfirst.nhs.uk