



MIBG scans

This information sheet explains about the MIBG scan, what is involved and what to expect when your child comes to Great Ormond Street Hospital (GOSH) for the scan.

What is an MIBG scan?

An MIBG scan is used to look for uncontrolled or abnormal cell growth in the body. It works by injecting a substance called an isotope into your child's veins. The isotope travels around the body and sticks to any abnormal areas. This will then help us to identify and pinpoint any areas of abnormality using a Gamma camera as the abnormal areas show up as 'hot spots' on the scan pictures. The MIBG scan is named after the chemical 'iodine-131-meta-iodobenzylguanidine' or MIBG for short, to which the isotope is attached.

An MIBG scan takes two days – on the first day, your child will have the isotope injection and on the second, they will have the scan.

Are there any alternatives?

Various types of scan such as CT, ultrasound and x-rays can be used to look for abnormal cell growth. However, they are specific to one area of the body so cannot look at the entire body in one scan.

MIBG scans are usually done in conjunction with a magnetic resonance imaging (MRI) scan and ultrasound scan to build an accurate and detailed picture. On their own, they cannot show the size and shape of any abnormal areas. The results of all three scans are used to plan and track your child's treatment.

When you receive your appointment letter

If you are unable to keep this appointment, please inform the department at least two weeks beforehand. Sometimes we can offer the appointment 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 48 hours after the injection. 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.

If your child is under five years old or has a medical condition that means it could be difficult to lie still, it is likely that they will need to have the scan under sedation or general anaesthetic. They will need to go to the ward in the morning before the scan to be prepared. Some older children may go to the ward just to have a cannula inserted. If your child has a central venous catheter, we can use this to inject the isotope instead of a cannula. The ward will contact you about the time of admission and any special instructions. If you have not heard from the ward three days before the scan, please telephone the Nuclear Medicine department.



Potassium iodate is a thyroid blocking medicine. It is given before a MIBG scan. The potassium iodate protects the thyroid against the isotope given during this scan.

To prepare for the MIBG scan, your child will take three doses of potassium iodate in all and it is vital that your child takes all three doses.

- **Dose 1** – at lunchtime on the day before the injection
- **Dose 2** – at lunchtime on injection day (before or after the injection)
- **Dose 3** – at lunchtime on scan day (before or after the scan)

The day of the injection

If your child needs to have a cannula inserted, you will need to report to the ward early in the morning on the day of the injection.

Once the cannula is in place, please arrive at the Radiology (X-ray) reception desk at the time stated.

The injection

The radiographer will inject the isotope slowly into the cannula or central venous catheter. The injection will last about five minutes and can be uncomfortable. We have to give the injection slowly in case a child has a reaction to the isotope, such as a sudden drop in blood pressure. You can stay with your child throughout the injection and can help to comfort and calm them.

Between the injection and the scan

Once they have had the isotope injection, you and your child will be able to leave the hospital if no other tests or scans are scheduled. Depending on how far you live from GOSH, you may be able to go home or stay in our accommodation. It is vital that your child continues to take the potassium iodate as instructed. Your child can eat and drink as usual but should avoid close contact with pregnant women as the isotope could harm an unborn baby.

The day of the scan

If your child is not having sedation or general anaesthetic

Please report to the X-ray reception desk at the time stated. We will then call you and your child to come to the scanning room. They will need to get up onto the scanning bed and lie very still. We can put sandbags around your child to help keep them still. You will be able to stay with your child throughout the scan. Please bring a favourite toy to hold or a DVD to watch with you – this will help distract your child during the scan.

If your child is having sedation or general anaesthetic

Please report to the ward as instructed. Once your child is sedated, they will be brought down to the Nuclear Medicine department on a trolley and you will be able to stay with them throughout the scan. If they are having a general anaesthetic, your child will be anaesthetised in the Nuclear Medicine department. You will be able to stay while they are being anaesthetised but we will then ask you to go back to the ward while the scan is taking place. The anaesthetist will stay with your child throughout the scan.

The scan

Once they are on the scanning bed, we will take a series of pictures of each area of your child's body, both front and back. Each picture takes about 10 minutes but if your child moves, we will need to start again. It can take between two and three hours to take the full series of pictures.

The radiologist will review the pictures as they are taken and decide whether another scan called a SPECT-CT is needed. This is an additional scan that gives us images in 3D, which can show structures at different depths in the body which might be hidden otherwise.



After the scan

If your child has not had sedation or general anaesthetic

You will be free to go home if your child is not having any further scans or tests.

If your child has had sedation or general anaesthetic

Your child will start to wake up in the recovery area and then be transferred to the ward to wake up fully. When they have woken up and had something to eat and drink, you will be able to go home.

The radiographer will send a report about the scan to your child's doctor.

Are there any risks?

There are no long term risks with 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 – we make every attempt to keep the dose as low as possible while still getting the best possible pictures to plan treatment.

This is not a danger to your child as the isotope becomes inactive in the days following the scan. However, it is necessary to take some precautions for the first 48 hours after the injection, while the isotope is leaving your child's body, as it remains active for a short time in your child's bodily fluids, such as urine (wee), faeces (poo) and vomit. These precautions 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 48 hours after the injection:

- Your child should drink plenty of fluids. This will allow the isotope to pass out through their body as quickly as possible.
- If your child is toilet-trained, they should go to the toilet as often as possible. Hand washing afterwards is very important.
- If your child is in nappies, you should change them 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 contact with your child's 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 7405 9200 ext 5220**