

Your child is having an MRI scan under intravenous sedation

A photograph showing two nurses in a clinical setting. One nurse, wearing blue scrubs and a name tag that reads 'EMMA L. GIBBY', is leaning over a child lying on a gurney. The child is covered with a white blanket and appears to be in an MRI scanner. Another nurse in light blue scrubs is standing to the left, looking towards the child. The background is a soft, purple and white environment, typical of a hospital's MRI suite.

Information for families

Great Ormond Street Hospital for Children
NHS Foundation Trust

This information sheet from Great Ormond Street Hospital (GOSH) explains about having a magnetic resonance imaging (MRI) scan under intravenous sedation, how to prepare for it and what care your child will need afterwards.

What is an MRI scan?

MRI is short for Magnetic Resonance Imaging. This means that rather than using x-rays, the scan uses a strong magnetic field, radio waves and a computer to take very detailed pictures of inside the body. MRI scans do not hurt and nothing will touch your child during the scan, although they are very noisy.

The MRI scanner is shaped like a short, open-ended tunnel with a bed that moves through the middle of it. Your child will lie down on the bed and the radiographer (specialist in taking images) will move the

bed inside the tunnel. An MRI scan usually lasts between 20 minutes and an hour.

Please watch our podcast (short video film) about having an MRI, available at www.gosh.nhs.uk/medical-conditions/procedures-and-treatments/your-childis-having-an-mri-scan/video-your-childis-having-an-mri-scan or on the GOSH channel on YouTube™.

If you would like further advice about preparing your child for the scan, please ring the department's play specialist on the number on the back of the leaflet.



Is an MRI scan safe for everyone?

No. If your child has a cardiac pacemaker or other metal devices in their chest or body, aneurysm clips in their head, dental braces within the last six weeks, or history of metal fragments in the eyes then the magnetic field of the MRI scanner may not be safe for them. Please call the department immediately when you get the appointment letter if you have any questions about safety.

Important

You (or whoever comes with your child to the scan) will need to know your child's full medical history from birth to the present day, including any operations they have had and will need to sign a metal check form stating that it is safe for your child to enter the MRI scanner. If this information is not known we may have to cancel the scan.

Why does my child need sedation for the MRI scan?

Some children find it difficult to lie still for the scan – either because of their age or their medical condition – so we might suggest they have sedation for the MRI scan. We assess all children to see if they might benefit from sedation. Your appointment letter will state whether your child is having sedation so you can follow the instructions below to prepare them.

Are there any alternatives?

Your child may need this scan so that their doctors can get detailed pictures of the size and shape of part of your child's body. Various types of scan such as CT, ultrasound and x-rays can show the size and shape of parts of your child's body but not in as much detail as an MRI scan. The information from the scan is then used to help with diagnosis and plan their treatment.

When you receive your appointment letter

If you are unable to keep this appointment, please inform the department as soon as possible beforehand. Sometimes, we can offer the appointment to another child on the waiting list. As so many children and young people need to use our services, we have had to introduce a policy where if a child cancels or does not attend two appointments in a row, we will close their referral and inform their GOSH consultant.

Preparing for the sedation

The evening before the scan, reduce the amount of sleep your child has by allowing them to go to bed an hour later than usual.

On the day of the scan, wake your child at least one hour earlier than usual and try to keep them awake on the way to GOSH.

It is important that your child does not eat or drink anything for a few hours before the sedation. This is called 'fasting' or 'nil by mouth'. Fasting reduces the risk of stomach contents entering the lungs during and after the procedure. It is equally important that your child does not fast for too much

longer than needed to avoid dehydration so we advise waking them in the night to give them a drink.

You will be informed the night before the procedure of the time that your child should be 'nil by mouth' – in other words, have nothing to eat or drink before the sedation.

The day of the scan

When you arrive at the hospital, you should report to the Otter Imaging Suite on level 1 (basement) of the Variety Club Building at GOSH. Details of how to get to GOSH are enclosed with your appointment letter and also available on our website at www.gosh.nhs.uk/parents-and-visitors/travelling-gosh. When you arrive at GOSH, ask one of our volunteer guides to show you the lift or stairs down to Otter.



Some scans need additional preparation — we will explain this when we call you the evening before.. We need this time to prepare you and your child, for instance, completing the metal check described below and to apply some local anaesthetic cream before the injection.

Your child should wear clothes without zips or metal poppers for the scan – otherwise they will need to change into a gown.

Before the scan starts, the nurse or radiographer will check your child does not have a pacemaker, metal implants or clips, dental braces, a history of metal fragments in the eyes or any allergies. We will ask you to sign a form to confirm this. If, for any reason, we cannot confirm whether or not your child has any metal implants or equivalents, we will have to cancel the scan as it would be unsafe to continue. If your daughter is 12 years old or older, we will ask her about her periods and any possibility she could be pregnant.

Your child will have the sedation medicine as an injection, so the nurses on Otter will insert a cannula (thin plastic tube) into a vein in your child's arm or hand – they can use local anaesthetic cream or cold spray to make their skin numb first. They will also give your child an energy drink so that they are not too thirsty when they come round from the sedation.

What does the scan involve?

Your child will have the sedation infusion into the cannula started 10 minutes before the scan is due to start.

Your child will need to lie on the bed for the scan. Depending on the part of their body being scanned, they may need to have a coil over part of their body or wear a head coil (this will not touch their head).

When your child is in the correct position, the radiographer will move the bed inside the scanner and then go into the control room. A nurse will stay with your child throughout the scan. The scanner will make a continuous knocking sound throughout the scan, which can be quite loud, but we will give your child ear protectors to minimise any discomfort. When the scan has finished, the radiographer will move the bed out of the scanner.

They will then move your child into the recovery area to wake up from the sedation. You should be prepared to stay in the department until your child is fully awake and has had something to eat and drink. Most families are able to go home a couple of hours or so after the scan.

Medicines given during an MRI scan

We may give your child some medicine during the MRI scan to make the image clearer. The radiographer will tell you which medicines your child has had in case of later side effects. The medicines we use most often at GOSH include:

- **Secretin** – This is a naturally occurring hormone that increases the volume of juice within the duct of the pancreas. It is given as an injection. Possible side effects include: loose or runny poo, cramp-like stomach ache, headache, skin itching and a rash.
- **Hyoscine butylbromide (Buscopan®)** – This medicine relaxes the smooth muscle of the intestine. Possible side effects immediately after the injection include: dilated pupils, dry mouth, flushing of the skin, dislike of bright light and palpitations. In the hours following the injection, other side effects may occur: constipation, urinary retention and urinary urgency.
- **Furosemide** – This medicine increases the production of urine immediately after injection. Possible side effects include: low blood pressure and dehydration. You can reduce these side effects by encouraging your child to drink plenty of fluids in the hours after the scan.
- **Gadoteric acid (Dotarem®)** – This is a ‘dye’ that makes blood vessels and any inflammation show up more clearly on the pictures. It is given as an injection. A possible side effect is hypersensitivity, but this will normally be an immediate effect. There are no reported long term side effects of gadoteric acid.

Are there any risks?

There are no risks associated with MRI scans. They are painless and generally quick with no lasting effects. The scanner does not touch your child during the scan. MRI scans are not suitable for people with certain metal implants inside them (such as pacemakers) because the scanner emits a strong magnetic field. This is why we carry out a thorough metal check before your child has the scan.

Risks of sedation are rare and these will be discussed fully on the day before you sign the consent form. The side effects of the sedation medication include raised blood pressure, increased sleepiness through the day and irritability. There may also be a short period when your child’s heart rate slows a little but this is monitored carefully. The sedation nurse is very experienced and is trained to deal with any complications.

What happens afterwards?

When your child has recovered fully from the sedation and has had something to eat and drink, you will be able to go home. The radiologist (doctor specialising in scans) will send a report of the scan to your child's doctor in time for their next appointment. If you have not been given a follow up appointment to see your consultant, please contact their secretary after two weeks.

When you get home

- Children are generally sleepier than usual for 24 hours after a scan with sedation. This is because the effects of the sedative last for about a day.
- If your child is unduly sleepy or difficult to rouse, make sure they are in a safe position on their side and telephone your family doctor (GP).
- Make sure that your child can tolerate a juice drink before offering anything to eat.
- Give milk only if your child does not feel sick or has vomited.
- Your child may have mood changes which can make them irritable. This is temporary.
- Keep a close watch on your child until they are back to normal. Do not leave them with an inexperienced carer.
- If your child is taking any medications, please give this as normal.
- Your child should be well enough to go to school a day or two after the scan.



If you have any questions or concerns, please contact:

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| Radiology Play Specialist: | 020 7405 9200 ext. 0301 |
| Sedation team: | 020 7405 9200 ext. 5866 |
| MRI Bookings: | 020 7813 8510 |

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