

# Magnetic Resonance Enterography (MRE) (Small Bowel Study)

Adult and Child/Young Person | Informed consent: patient information

**A copy of this patient information sheet should be given to the patient or substitute decision-maker or parent/legal guardian/other person\* of a child or young person to read carefully and allow time to ask any questions about the procedure. The patient information sheet should be included in the patient's medical record.**

*In this information sheet, the word 'you' means the patient unless a substitute decision-maker, parent, legal guardian or other person is providing consent on behalf of the patient, in which case the word 'you' means the substitute decision-maker, parent, legal guardian or other person when used in the context of the person providing consent to the procedure.*



## 1. What is a Magnetic Resonance Enterography (MRE) (small bowel study) and how will it help me?

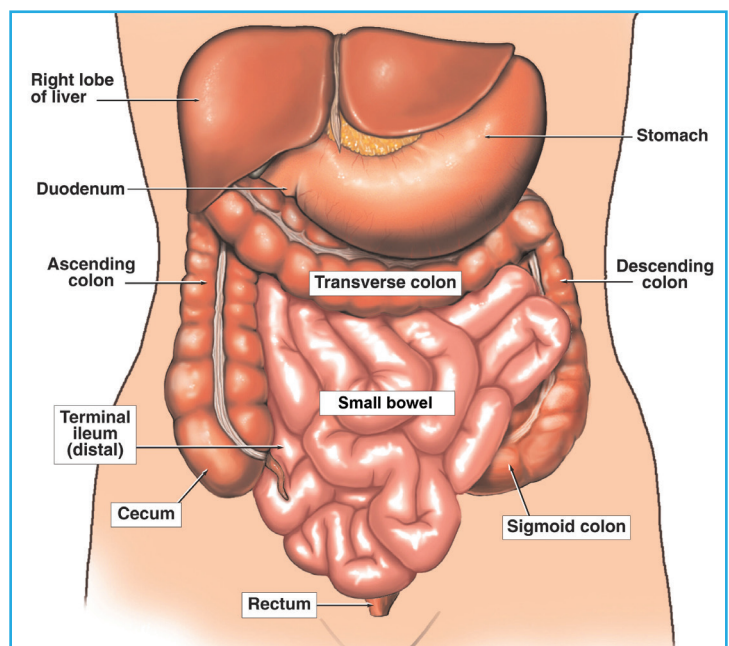
A Magnetic Resonance Enterography (MRE) (small bowel study) is a type of scan that shows detailed images of your small bowel (also known as the small intestine). It can be used to help to diagnose inflammation, bleeding and obstructions of the small bowel.

The Magnetic Resonance Imaging (MRI) scan uses a strong magnetic field, radio waves and a computer to produce images of the body. MRI does not use any ionising radiation or x-rays. For soft tissues, MRI images are generally more detailed than x-rays and other scans.

MRI images are taken of the abdomen after some preparation to make sure that your bowel and the bowel wall can be seen clearly in the images.

Preparation will require you to drink approximately 1L of liquid (either fibre-filled or a laxative). It may also require MRI contrast. MRI contrast is a colourless liquid that is injected into your blood stream. It is used during MRI scans to allow your internal organs and structures to be seen more clearly. The radiologist (doctor) may need to use contrast to see more detail on the images, and to help with your diagnosis.

You may also be given an injection of hyoscine butylbromide (Buscopan™) or glucagon to slow down the normal movements of your bowel for a short time, this will improve the quality of the MRI images.



*Image: Anatomy of small and large intestine (adapted).  
Illustration Copyright © 2019 Nucleus Medical Media,  
All rights reserved. [www.nucleusmedicalmedia.com](http://www.nucleusmedicalmedia.com)*

## MRI safety

- No one is permitted into the scanning room until they have answered a series of safety questions and taken off all removable metal objects from their body (e.g. jewellery, piercings, glasses and mobile phones). Your removable metal objects and personal items must be left outside the MRI scan room. You will be allocated a place to store your belongings safely.
- You will be required to change into a hospital gown.



- It is important you answer the safety questions as correctly as possible to avoid injury.
- If you have an implant, foreign body (e.g. shrapnel) or inserted medical device, MRI staff will work to determine if it is safe for you to go into the strong magnetic field of an MRI scanner.
  - If you have an implant, foreign body or device that is not safe to go into an MRI scanner, you may not be able to have an MRI scan.
  - If you have an implant or device that is safe to enter a strong magnetic field under certain conditions, MRI staff will determine if your device or implant is safe to go into the MRI scanner at this hospital.
  - For some devices and implants, it may not be possible to have an MRI scan at one hospital, while it is possible at another hospital. This is because the strength of the magnetic field is not the same for all MRI scanners. The MRI scanner at one hospital might be able to meet the special conditions of your implant or device, whereas the MRI scanner at another hospital cannot.
  - MRI safety also depends on the risk versus benefit for each individual; no one will be refused an MRI without a thorough review.
  - If you have an implanted device you may have received a Patient Implant Card (PIC) with details of the device. The PIC will help MRI staff determine if and how the scan can be performed safely.

## Preparing for the scan

The Medical Imaging department will give you instructions on how to prepare for your procedure. It is important to follow the instructions that are given to you. Your procedure might be delayed if you don't follow all of your preparation requirements.

You are required to fast (stop eating and drinking) prior to the procedure. You will be given instructions when to have your last meal and drink.

Medical imaging staff will notify you beforehand if you are required to stop taking any blood thinning medicine. List or bring all your prescribed medicines, those medicines you buy over the counter, herbal remedies and supplements to show the doctor/clinician what you are taking.

Please tell the doctor/clinician if you are breastfeeding or pregnant, or suspect that you may be pregnant.

Some people find that being inside the light-filled, open-ended tunnel of the MRI machine makes them feel uncomfortable. If you feel uncomfortable, let the staff know as there are many ways they can help you.

### **For a parent/legal guardian/other person of a patient having an MRE (small bowel study)**

To prepare the patient for this procedure and to ease their concerns, tell them what they can expect to happen during the procedure. This information sheet will assist you with this.

We welcome your help and support in preparing the patient for the procedure and in explaining why it's so important to lie still.

At the discretion of the procedure staff, a parent/adult (unless pregnant) may be invited into the procedure room to support the patient.

MRI staff will need to determine that this support person does not have an implant, foreign object or device that is not safe to go into the MRI scan room.

Other children are not allowed into the procedure room, and they must be supervised at all times by another parent/adult.

## During the scan

If you are having contrast or an intravenous (I.V.) medication it will be administered via an I.V. cannula. An I.V. cannula is a small plastic tube inserted into a vein using a needle, usually in your hand or arm.

The MRI scan itself should not cause you any pain. You may feel some vibrations and a warm sensation during your MRI scan.

You will be given fluid to drink over about 45 minutes before your MRI scan. Most adult patients will be required to drink between 1–1.5L of fluid. For children the amount of fluid to drink is based on their weight. This allows the fluid to be distributed evenly through your bowel, for the best image quality.

Once you have finished all the required drinks you will be positioned on the MRI bed.

Some MRI scans require the use of a light piece of equipment called a coil which acts as an antenna to pick up signals and create an image. The coil will be carefully placed over the area of your body that is being scanned.

MRI staff will make sure you are positioned to avoid skin-to-skin contact (e.g. you cannot have your arms or legs crossed) and they may place padding around you, so you do not touch the walls of the scanner.

To assist in reducing the risk of thermal injuries, it is very important you remain in the position MRI staff placed you in at the start of the scan.

The MRI scanner is usually very noisy. You may hear thumping and knocking sounds. You will be given headphones and possibly earplugs to protect your hearing from the noise.

MRI staff will not be in the room during the scan, but they will be able to see you and talk to you between images. Before the scan starts, you will be given a call button for you to press if there is an urgent concern.

During the MRI scan we will take lots of images. You need to keep still for each image, so it isn't blurry. You will be required to hold your breath, multiple times, for up to 20 seconds. The MRI staff will explain and practice this with you prior to starting the scan.

After the first few breath holds, the images will be checked to ensure the fluid you have had to drink has travelled all the way through the small bowel. The amount of time this takes varies from person to person. In some cases if the fluid has not travelled all the way through your small bowel, you may be required to walk around or drink more fluid.

Once the radiologist (doctor) is happy that the fluid is evenly spread throughout the small bowel you may be given a smooth muscle relaxant such as hyoscine butylbromide (Buscopan™) to slow down the normal movements of the bowel to improve the image quality.

You will be asked some additional questions to ensure it is safe for you to be given this medication. This is given through your I.V. cannula. You may notice some dryness in your mouth and your vision blurring which should resolve quickly.

If it is not safe for you to have hyoscine butylbromide (Buscopan™), glucagon can be given as an alternative. Glucagon is a hormone that is used in medical imaging to temporarily reduce the normal peristaltic movements of your bowel, to improve image quality.

The contrast will be given through your I.V. cannula during the scan.

When your scan is finished, you will be taken out of the MRI scan room. If you had an I.V. cannula and it is no longer required, it will be removed.

Due to the preparation required for the scan, you may be required to be in the MRI department for a few hours.



## 2. What are the risks?

In recommending the procedure, the doctor/clinician believes that the benefits to you from having the procedure exceed the risks involved. There are risks and possible complications associated with the procedure which can occur with all patients – these are set out below. There may also be additional risks and possible complications specific to your condition and circumstances which the

doctor/clinician will discuss with you. If you have any further concerns, please ensure that you raise them with the doctor/clinician.

### Common risks and complications

- minor pain, bruising and/or infection from the I.V. cannula
- (*MRI contrast only*) gadolinium is the key component of the contrast material most often used in MRI scans. Small amounts of gadolinium may deposit in tissues of the body, including the liver, bone and brain. This is called gadolinium retention. The effects of gadolinium retention are an area of ongoing research
- (*Buscopan™ only*) blurred vision that is temporary, constipation, decreased ability to sweat, dizziness, dry mouth, fast heartbeat
- diarrhoea from the fluid that you are given to drink.

### Uncommon risks and complications

- contrast or medication injected into a blood vessel may leak outside the blood vessel, under the skin and into the tissue. This may require treatment. In very rare cases, surgery may be required if the skin breaks down
- the scan may not be possible due to medical and/or technical reasons.

### Rare risks and complications

- thermal burns are extremely rare due to precautionary measures taken by MRI staff
- (*MRI contrast/medications*) allergic reactions rarely occur, but when they do, they occur within the first hour, with most happening in the first five minutes. The reactions vary from:
  - mild: headache, brief nausea, dizziness, hives, rash and itching
  - moderate: widespread hives, headache, facial swelling, vomiting, shortness of breath
  - severe: severe reactions are rare but include life-threatening heart palpitations, very low blood pressure, throat swelling, seizures and/or cardiac arrest

- (*MRI contrast only*) nephrogenic systemic fibrosis (NSF) can occur to those who have severe renal impairment and are given MRI contrast. Please refer to the section on precautions for kidney function to learn more about NSF
- (*Buscopan™ only*) difficulty urinating, shortness of breath, vision changes
- injury, severe injury or death because of an undeclared metal implant or if an implant is scanned without the necessary conditions for safety
- death because of an MRI scan is extremely rare.

## Precautions

MRI contrast cannot be given to some people. If the radiologist thinks it would be useful to give you contrast for your MRI scan, you will be asked some questions to see if there are any reasons why you should not be given contrast.

If it is not safe for you to have contrast, the radiologist might decide to do an MRI scan without contrast or they might decide to do a different test.

### Kidney function

MRI contrast is removed from the blood by the kidneys through the urine. It is easily removed from the body of people who have normal kidney function.

You may need a blood test to find out the level of your kidney function before you are given contrast.

Nephrogenic Systemic Fibrosis (NSF) is an extremely rare condition that results in scarring or thickening of the skin and tissues throughout the body. It can occur days to years following exposure to gadolinium. It is severely disabling and often fatal. As NSF has almost only ever been seen in people with severely reduced kidney function and those on dialysis, every effort is made to avoid giving gadolinium to these patients. However, sometimes there is no good alternative and contrast is required to help rapidly and effectively diagnose serious organ and life-threatening diseases so effective treatment can be started.

It is safe and reasonable for almost all patients with kidney disease and those on dialysis to receive contrast in these circumstances.

### What are the risks of not having an MRE (small bowel study)?

There may be adverse consequences for your health if you choose not to have the proposed procedure. Please discuss these with the referring doctor/clinician.



### 3. Are there alternatives?

Making the decision to have a procedure requires you to understand the options available. Please discuss any alternative procedure options with your doctor/clinician.



### 4. What should I expect after the scan?

Your healthcare team will talk to you about what to expect after your procedure and upon discharge from hospital.

The radiologist will review the final images after the scan and send the report to your treating team.

You will receive the results of the scan from your treating team at your next follow-up appointment. Please make an appointment if you do not already have one.



### 5. Who will be performing the scan?

Radiographers, doctors, nuclear medicine technologists, sonographers, nurses, and medical imaging assistants make up the medical imaging team. All or some of these professionals may be involved in your procedure.

A doctor/clinician other than the consultant/specialist may assist with/conduct the clinically appropriate procedure. This could include a doctor/clinician undergoing further training, however all trainees are supervised according to relevant professional guidelines.

If you have any concerns about which doctor/clinician will be performing the procedure, please discuss this with the doctor/clinician.

For the purpose of undertaking professional training in this teaching hospital, a clinical student(s) may observe medical examination(s) or procedure(s) and may also, subject to your consent, assist with/conduct an examination or procedure on you.

You are under no obligation to consent to an examination(s) or a procedure(s) being undertaken by a clinical student(s) for training purposes. If you choose not to consent, it will not adversely affect your access, outcome or rights to medical treatment in any way.

For more information on student care, please visit [www.health.qld.gov.au/consent/students](http://www.health.qld.gov.au/consent/students).



### 6. Where can I find support or more information?

Hospital care: before, during and after is available on the Queensland Health website [www.qld.gov.au/health/services/hospital-care/before-after](http://www.qld.gov.au/health/services/hospital-care/before-after) where you can read about your healthcare rights.

Further information about informed consent can be found on the Informed Consent website [www.health.qld.gov.au/consent](http://www.health.qld.gov.au/consent). Additional statewide consent forms and patient information sheets are also available here.

Staff are available to support patients' cultural and spiritual needs. If you would like cultural or spiritual support, please discuss this with your doctor/clinician.

Queensland Health recognises that First Nations People's culture must be considered in the patient's clinical care to ensure their holistic health and individual needs are met.



### 7. Questions

Please ask the doctor/clinician if you do not understand any aspect of this patient information sheet or if you have any questions about your proposed procedure.

If you have further questions prior to your appointment, please contact the Medical Imaging department via the main switchboard of the facility where your procedure is booked.



## 8. Contact us

**In an emergency, call Triple Zero (000).**

If it is not an emergency, but you have concerns, contact 13 HEALTH (13 43 25 84), 24 hours a day, 7 days a week.

### References:

- \* Formal arrangements, such as parenting/custody orders, adoption, or other formally recognised carer/guardianship arrangements. Refer to the Queensland Health 'Guide to Informed Decision-making in Health Care' and local policy and procedures.