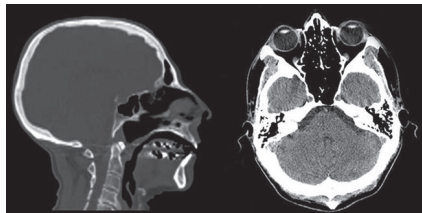


CT scans (Computed Tomography)

i Information for patients Radiology



In hospital and in the community

proud to make a difference

What is a CT scan?

CT is a short way of saying Computed Tomography. Computer Tomography scanning is used commonly in the diagnosis of illnesses today. It is similar to conventional radiology as it uses x-rays. However, a CT scan uses a specialised computer to produce detailed images in 'slices' through the body. These images can then be put together to create a 3D picture of your body.

What is a CT scan used for?

CT scanners can be used to image different parts of the body such as:

- Internal organs within the chest and abdomen such as the lungs, liver and bowel
- Bone imaging such as the ankle/foot
- Head and brain imaging
- Vascular imaging to examine the blood flow.

Why do I need a CT scan rather than a normal x-ray?

A CT scan produces more detailed images than an x-ray picture. CT images are good in distinguishing between different types of soft tissue. These can be put together to produce 3D images which may help provide extra information about your condition.

You will have recently seen your doctor about a medical problem. Your doctor should have discussed the reason for wanting a CT scan. If you are unsure as to why the scan is necessary, it is best to talk to your doctor as they will have all your details.

What does a CT scanner look like?



A CT scanner looks like a giant polo mint. It is circular with a large hole in the middle and is open at both ends.

During the scan you will be asked to lie on the scan table. The table will move in and out of the scanner as it takes the images.

What will happen when I arrive?

On arrival in the x-ray department please tell the receptionist that you are here. You will be asked to take a seat in the waiting area. You will then be collected by a clinical assistant or radiographer who will take you to prepare for your scan.

Consent

We must obtain your consent for any procedure or treatment beforehand. Staff will explain all the risks, benefits and alternatives before they ask for your consent.

If you are unsure about any aspect of the procedure or treatment proposed, please do not hesitate to ask for more information.

Will I need any special preparation for the scan?

You may need special preparation depending on the type of scan you are having. Your appointment letter will indicate whether you need preparation for the scan and you will be asked to come to the CT department up to one hour before your appointment time. This is so you can drink some fluid that helps to show up the stomach and bowel areas better and provides more information on the scan. You will be asked to drink 1 litre of fluid before the scan.

Your co-operation is important and drinking the full amount of the preparation drink helps the Radiologist interpret the scan and will help give more accurate results.

For some scans no preparation drink is required.

Will I need an injection?

For the majority of CT scans you will require an injection of x-ray contrast (dye). This is not a radioactive substance. This liquid highlights your blood vessels and organs on the scan pictures and helps give more detailed information.

Scans requiring preparation and injection

- **Head scans:** No oral preparation is required. Most head scans are performed without the injection of x-ray dye, however, an injection of dye is occasionally given to provide more information.
- **Chest scans:** No oral preparation is required. Most chest scans are performed using an injection of x-ray dye.
- **Abdominal and pelvic scans:** Both oral preparation and injection of x-ray dye are usually required for abdominal and pelvic scans. Further preparation before and during abdominal and pelvic scans may be required. You will be given further information if any extra preparation is necessary for your scan.

- **Orthopaedic (bone) scans:** These are scans of your spine, pelvis, upper and lower limbs to look specifically at the bones and joints. No oral preparation or injections of x-ray dye are usually required for these scans.
- **Vascular scans:** These are scans to look specifically at the blood vessels in your body. No oral preparation is required. An injection of x-ray dye is required to highlight the blood vessels.

A combination of these scans can often be performed together, therefore the oral preparation and injection required may alter from the information given above.

Who performs my scan?

The person who carries out the scan is called a **radiographer** who will explain your procedure thoroughly when you come for your appointment.

A **radiologist** (a doctor specially trained in looking at x-rays) will interpret the scan and send the results to your doctor.

What will happen during the scan?

When it is time for your scan you may be asked to change into a hospital gown, you will then be asked to lie on the scanner table. If you require an injection of x-ray dye the radiographer will go through the questionnaire you have been asked to complete, to ensure that it is safe to give you the injection.

A small needle (cannula) will be placed into your arm to allow the x-ray dye to be administered during the scan. The x-ray dye will not be injected straight away, the radiographer will need to do some planning scans first but will warn you when the dye is being injected.

You will be scanned several times, during which you will move in and out of the scanner. For the majority of scans you will be asked to hold

your breath for up to 15 seconds. It is important that you hold your breath and keep still as breathing and moving causes blurring and can ruin the scan pictures. The CT scanners at the Sheffield Teaching Hospitals are very fast modern scanners.

What happens after the scan?

Once the scan is complete you will be asked to return to the cubicle to change. In some cases you will be able to leave the department immediately. If you have been given the injection of x-ray dye during the scan you will be asked to wait in the department for an extra 15 minutes, the cannula will be left in your arm. This is because we need to monitor you to make sure the effects of the x-ray dye have worn off and that you feel alright before you leave.

Once your cannula has been removed by a member of the CT staff, pressure will need to be applied to the site to prevent bruising, you will then be able to leave the department.

Be careful not to knock the injection area once you have left the department, particularly if you take **aspirin** or **warfarin** as this can cause the area to bleed again. If bleeding does occur, apply pressure to the area using a clean cloth or gauze to stop the bleeding and reduce any bruising.

The injection of x-ray dye causes no known effects on the ability to drive or operate machinery. However, due to the risk of reaction (see risk section, page 8), patients are advised not to drive or operate machinery for one hour after the injection.

How long does it take?

A scan can take anything from 5 to 20 minutes depending on the type of scan you are having. Please be aware that you may be asked to arrive up to an hour earlier if you need to have a drink before the scan. If you have been given the injection of x-ray dye during the scan you will be

asked to wait in the department for an extra 15 minutes. You should anticipate being in the department for up to two hours.

Due to the nature of our workload we often have to perform emergency scans which must be prioritised. Whilst we try to keep to appointment times this may occasionally cause slight delays with routine appointments. We thank you for your patience.

Are there any risks?

There are a few risks involved with a CT scan. They include:

Radiation - A CT scan uses radiation in the form of x-rays to form the images. The amount of radiation used is more than for an ordinary x-ray of the same area but is equal to the amount of natural radiation from the atmosphere we all receive over a few years. This adds very slightly to the risk, for example, of developing a cancer. However, this risk is very small. The amount of radiation is kept to a minimum to reduce this risk and a CT scan is considered a safe procedure. Your doctor has chosen this test for a good reason and the risk of missing a problem by not having the scan may be considered a greater risk.

The effective radiation dose for a:

- CT head scan is 2 mSv which is equivalent to 1 year of background radiation received for an adult.
- CT chest scan is 8 mSv which is equivalent to 3.6 years of background radiation received for an adult.
- CT abdomen scan is 10 mSv which is equivalent to 4.5 years of background radiation received for an adult.

For more information regarding the risks of radiation visit the **Health Protection Agency** at **www.hpa.org.uk**

Radiation, pregnancy and women of childbearing age - If you are of child bearing age and are still having regular periods we may need to know the dates of your last menstrual period. For the majority of scans we will only need to know that you have had a period within the last month and are not overdue.

If you are having a CT scan of your lower back, abdomen or pelvic area we need to ensure that the first day of your last period is within 10 days of the scan. This is to ensure that we do not mistakenly irradiate a foetus/unborn baby. You may be asked to book the CT appointment to coincide with these dates. However, if you attend for your scan and are outside of these dates you will be asked to take a pregnancy test to ensure you are not pregnant. This is precautionary, but for safety and legal reasons must be done.

X-rays can be harmful to your unborn baby, it is important to tell the CT staff if you are or think you may be pregnant.



Reaction to the injections - The x-ray dye used for this test contains iodine and it does have some natural side effects, which are:

- Hot flush
- Metallic taste in the mouth
- Sensation of passing water

These usually pass within a few minutes.

We take every precaution to ensure that you will have no adverse effect from the injection, however very occasionally (in less than 0.03% of cases) patients can have an allergic reaction to the dye. This can manifest itself as an itchy rash, shortness of breath and, in extremely rare occasions, swelling of the throat and other body parts.

A reaction to the x-ray dye usually occurs within minutes of the injection, however on rare occasions a reaction may not occur until you have left the scanning department. If you experience a reaction after you have left the department do not hesitate to contact your GP or the local A&E department.

Please inform staff of any allergies you may have to prevent the occurrence of an allergic reaction.

Asthma - On rare occasions the x-ray dye can bring on an asthma attack, if you are asthmatic please remember to bring your inhalers with you.

Kidney Function - The x-ray dye injection can cause your kidneys to work more slowly. This is only a problem if you already suffer with kidney problems. If you have not had a recent blood test you may need to have one before the scan to check your kidneys are working properly. You should only require a blood test if you are a diabetic taking Metformin (Glucophage), have existing kidney problems or are aged 65 or over. Your doctor will organise this for you.

Depending on these blood results you may need to be hydrated before and after the scan, this can involve drinking 1 litre of water before and after the scan or you may need to come into hospital and be put on a drip for a few hours before and after the scan.

Once we receive your blood test results you will be informed if this is necessary for you.

The short questionnaire you have been asked to complete provides information to help reduce the risk of an allergic reaction and medical problems. Please remember to complete this and hand it in when you attend for your scan.

Shall I continue taking my medication?

Yes, continue taking any medication unless you are advised otherwise. If you are diabetic and taking Metformin you may need to stop taking this.

If you are diabetic and taking Metformin please contact the CT scanning department as soon as possible. Our telephone number is provided on your appointment letter.

When will I get my results?

We cannot give you your results straight away because the radiologist will need time to review the scan in detail. Your results will be sent to the doctor who referred you for the scan. You may have an outpatient appointment booked with your doctor at which you can discuss the results of the scan. If you have not arranged to see your doctor already you will be sent an appointment once your doctor has received the results.

Are there any alternative tests?

Your doctor has referred you for a CT scan because they feel that this is the best test for you. However, if you feel unhappy about having a CT scan there may be alternative tests that you can have. You will need to discuss these with the doctor who has asked for you to have the scan.

What if I still have some questions?

After reading this leaflet, if you want to know more, or have any concerns, you can contact the doctor who referred you for the scan, the CT scanning department or you can ask the radiographer when you arrive for the scan.

If you cannot make your appointment or have any queries please contact the CT scanning department. Our telephone number is provided on your appointment letter.

Alternatively you can email:

Jenny.Braithwaite@sth.nhs.uk

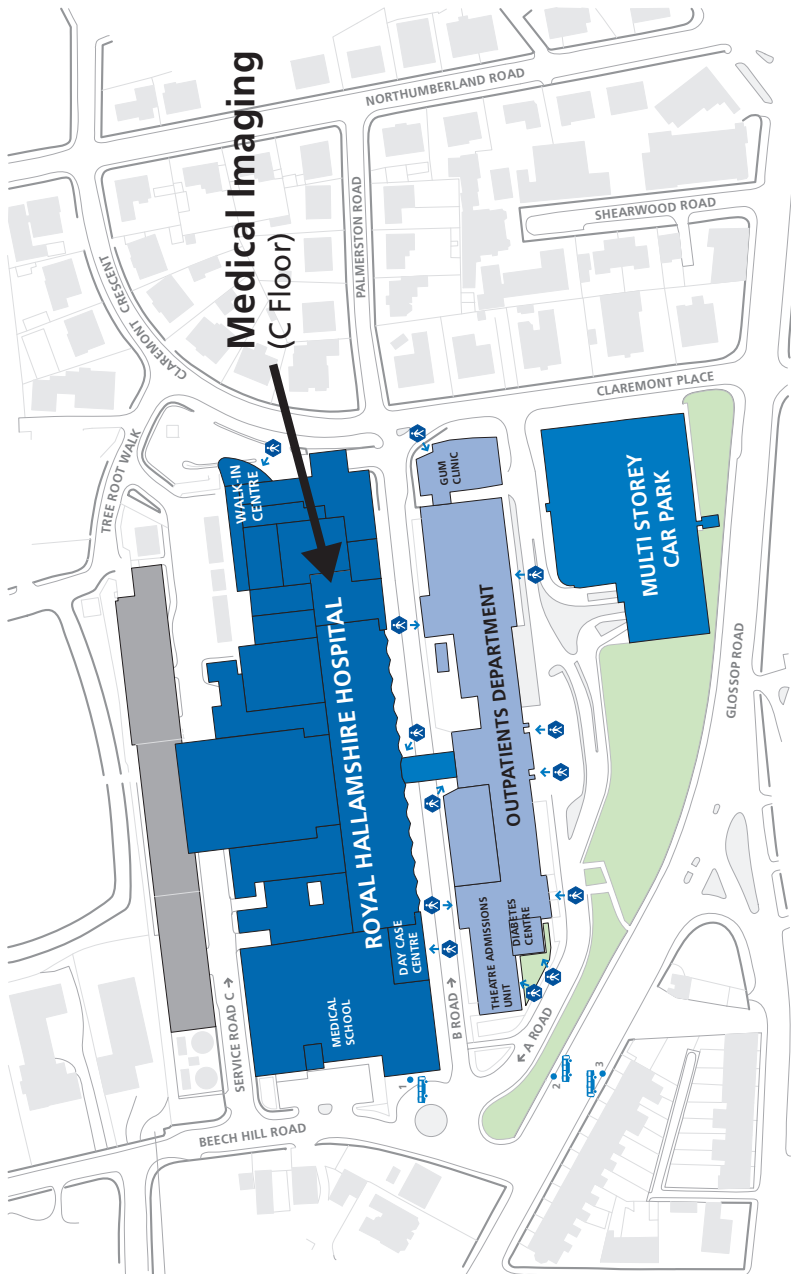
CT & MRI Manager

Sheffield Teaching Hospitals

Notes

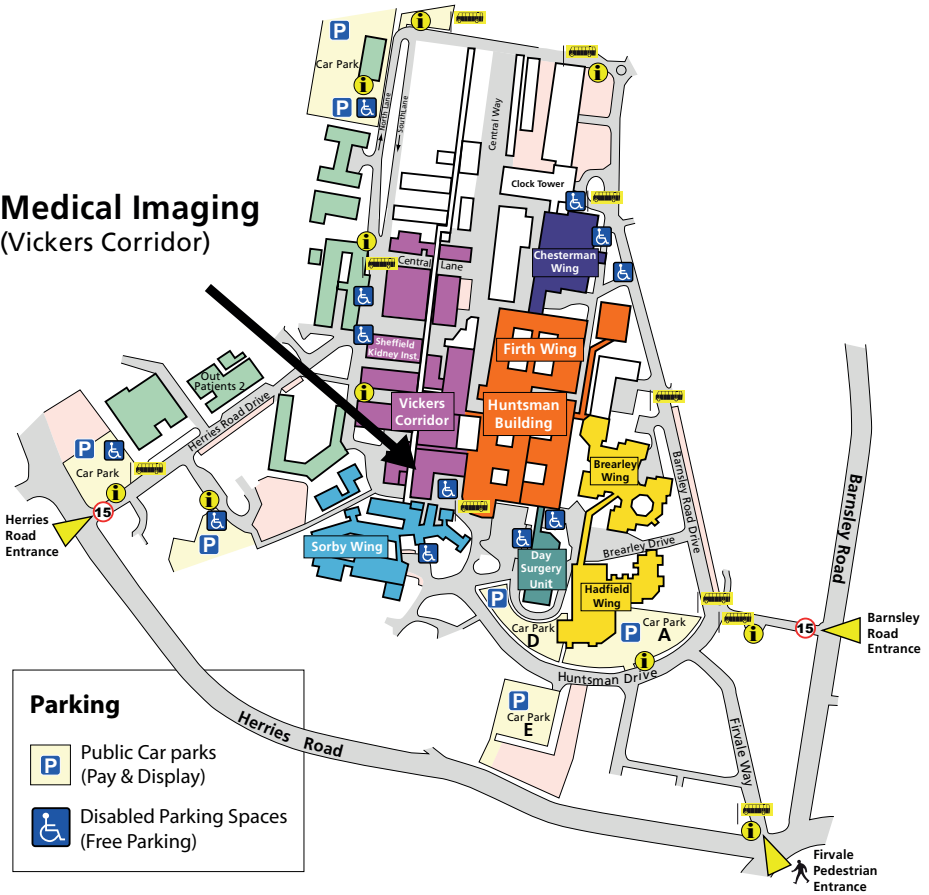
Notes

Royal Hallamshire Hospital





Northern General Hospital

Medical Imaging (Vickers Corridor)



Parking

-  Public Car parks (Pay & Display)
-  Disabled Parking Spaces (Free Parking)



Produced with support from Sheffield Hospitals Charity
Working together we can help local patients feel even better

To donate visit

www.sheffieldhospitalscharity.org.uk Registered Charity No 1169762



Yes I donate
ORGAN DONATION

Alternative formats can be available on request.
Please email: alternativeformats@sth.nhs.uk

© Sheffield Teaching Hospitals NHS Foundation Trust 2017

Re-use of all or any part of this document is governed by copyright and the "Re-use of Public Sector Information Regulations 2005" SI 2005 No.1515. Information on re-use can be obtained from the Information Governance Department, Sheffield Teaching Hospitals. Email infogov@sth.nhs.uk