

Computed Tomography (CT) Scan

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

A copy of this patient information sheet should be given to the patient/substitute decision-maker/ parent/legal guardian/other 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 Computed Tomography (CT) scan and how will it help me?

Computed Tomography (CT) scans produce cross-sectional images of the body using x-ray radiation.

CT is used when your doctor/clinician needs more information than a plain x-ray can provide. The CT machine looks like a large doughnut with a narrow table in the middle. The table moves through the circular hole in the centre of the scanner. The CT machine is open at both ends. The information from the CT scan may help provide a specific disease diagnosis and/or information about your condition.

Contrast

You will sometimes be given contrast (also known as x-ray dye) as part of your CT scan so that your internal organs and structures can be seen more clearly on the scan. If the Radiologist (doctor) thinks it would be useful to give you iodinated contrast for your CT scan, we will ask you some questions to make sure it is safe for you to be given the contrast.

There are two types of contrast used in CT scans: oral contrast is given as a drink and intravenous (I.V.) contrast is injected into a vein. Some people will be given both types of contrast because they highlight different things. Others may not need contrast or will only be given one type of contrast.

Oral contrast is used to show the stomach and intestines more clearly.

I.V. contrast is used to show the internal organs and structures of your body more clearly.



Image: A patient entering a CT scanner, assisted by a radiographer. ID: 167757581. www.shutterstock.com

Preparing for the procedure

The Medical Imaging department will give you instructions on how to prepare for the procedure. Some CT procedures require special preparation. You will receive personalised instructions depending on:

- body part being scanned
- whether fasting is required
- whether contrast is likely to be used
- other instructions related to your personal circumstances.

Your procedure might be delayed if you don't follow all of your preparation requirements.

Please tell the staff if you are breastfeeding or pregnant, or suspect that you may be pregnant.



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For more information on this please read the information sheet *Computed Tomography (CT) Scan (for a pregnant person)*. If you do not have one of these information sheets, please ask for one.

The CT scan itself will not cause you any pain.

It is important that you lie still for the CT scan. Supporting straps, foam pads and light weights may be used to help with this. If a child or young person is unable to lie still, sedation or a general anaesthetic may be required. Sedation or a general anaesthetic would need to be organised prior to the date of your scan. Please contact the Medical Imaging department to discuss.

If booked for an anaesthetic, please read the information sheet *About Your Child's Anaesthetic (for child/young person)*. If you do not have one of these information sheets, please ask for one.

For parents/guardians of a patient having a CT scan

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. An informational video can be found using the following link: www.childrens.health.qld.gov.au/service-medical-imaging-ct-scan/.

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/guardian/adult (unless pregnant) may be invited into the procedure room to support the patient
- if the patient is having a general anaesthetic you may be able to see them off to sleep. Once they are asleep you will be asked to leave the procedure room and wait in the waiting area.

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

During the procedure

You may be required to change into a hospital gown and remove some of your jewellery.

If contrast needs to be given it is administered via an intravenous (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.

When the contrast is injected you may feel:

- a very warm or 'flushed' feeling over your body, this may also make you think you have passed urine – it is only a feeling
- a 'metallic' taste or smell. This usually lasts less than a minute.

You will be positioned on the CT table by a radiographer. The radiographer will not be in the room during the scan, but they will be able to see you, through a large glass window, and speak with you via an intercom.

During the scan, the table will move through the CT scanner and a whirring or humming sound may be heard.

You should remain as still as possible, as the slightest movement can blur the images. For some scans, you will be asked to hold your breath for up to 20 seconds. The whole CT scan takes approximately 5 to 20 minutes depending on which part of the body is being scanned.

If you had an I.V. cannula and it is no longer required, it will be removed.

You may be asked to wait in the department under observation for up to half an hour after I.V. contrast.



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. This may require treatment
- bruising is more common if you have been taking blood thinning drugs, such as warfarin, aspirin, clopidogrel (Plavix, Iscover, Coplavix), prasugrel (Effient), dipyridamole (Persantin or Asasantin), ticagrelor (Brilinta), apixaban (Eliquis), dabigatran (Pradaxa), rivaroxaban (Xarelto) or complementary/alternative medicines, such as fish oil and turmeric.

Uncommon risks and complications

- the CT scan may not be possible due to medical and/or technical reasons
- (*I.V. iodinated contrast only*) injected contrast may leak outside the blood vessel, under the skin and into the tissues. This may require treatment. In very rare cases, surgery may be required if the skin breaks down around the injection site.

Rare risks and complications

- (*I.V. iodinated contrast only*) allergic reactions rarely occur, but when they do, they usually occur within the first hour, with most happening in the first five minutes. Late reactions have been known to occur up to 1 week after the injection, but these delayed reactions are mild. Note: Allergy to topical iodine and/or seafood does not imply an allergy to iodinated contrast. The reactions vary from:
 - » mild – hives, sweating, sneezing, coughing, nausea
 - » 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
- death because of a CT scan is very rare.

Risks of radiation

The risks of radiation exposure from this procedure need to be compared to the risks of your condition not being treated. Exposure to radiation may cause a slight increase in the risk of cancer to you over your lifetime. However, the potential risk is small compared to the expected benefit of this procedure¹.

If you received contrast and are breastfeeding, there is no reason to stop breastfeeding or discard your breastmilk for any period of time. Your milk will not harm your baby.

Precautions

Contrast cannot be given to some people. If the Radiologist (doctor) thinks it would be useful to give you contrast for your CT scan, you will be asked some questions to make sure it is safe for you to be given the contrast. If it is not safe for you to have contrast, the radiologist might decide to do a CT scan without contrast or they might decide to get images another way.

Kidney function

- Contrast is removed from the blood by the kidneys through the urine.
- Modern contrast used in CT scanning is minimally, if at all, harmful to the kidneys. CT scans with contrast can be safely performed in patients with kidney disease as clinical studies have not proven increased risk of worsened kidney function or increased need for dialysis². When significant worsening of kidney function is seen, there is often more than one factor causing stress to the kidneys such as certain medications, infection, dehydration or low blood pressure. To minimise stress to your kidneys your doctor/clinician may recommend you have extra fluid to ensure good hydration, stop some medications temporarily or have extra blood tests to monitor your kidney function around the time of your contrast CT scan.
- You may be asked to have a blood test so we can find out how well your kidneys are functioning.

What are the risks of not having a CT scan?

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 the patient/substitute decision-maker/parent/legal guardian/other person to understand the options available. Please discuss any alternative procedure options with your referring doctor/clinician.



4. What should I expect after the procedure?

It is recommended that you drink 2 to 4 glasses of water after the CT scan to help remove the contrast from your body. Contrast will not affect your ability to carry out normal activities; you should be able to continue with your day as normal.

You will receive the results of your CT 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 procedure?

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 a patient while the patient is under anaesthetic.

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.



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 where you can read about your healthcare rights.

You can also see a list of blood thinning medications at www.health.qld.gov.au/consent/bloodthinner.

Further information about informed consent can be found on the Informed Consent website 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 Aboriginal and Torres Strait Islander patients will experience the best clinical care when their culture is included during shared decision-making.



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 medical condition, treatment options and 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:

1. Davenport MS, Perazella MA, Yee J, et al. *Use of Intravenous Iodinated Contrast Media in Patients with Kidney Disease: Consensus Statements from the American College of Radiology and the National Kidney Foundation*. Radiology 2020 Jan 21;294:660–668].
 2. Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Ionising radiation in our everyday environment www.arpansa.gov.au
- * 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.