



# Having a scan?

## A guide for Medical Imaging

Medical imaging enables earlier and less invasive diagnosis for numerous medical conditions. Different types of medical imaging examinations are available to help medical practitioners identify what's happening inside the body and a number of them involve radiation.

There is a small potential risk from radiation with some medical imaging. However, the benefits of accurately identifying, locating and treating medical issues will typically far outweigh the relatively small risks involved. For example, some diseases when identified early can be easily treated and result in full recovery, while a late diagnosis may lead to prolonged treatment, less favourable outcomes and even death. Medical imaging can also rule out serious illness - providing reassurance for patients. Scans may also be a viable and welcome alternative to 'explorative surgery'.

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## What about radiation from CT scans and Nuclear Medicine?

Compared to standard X-rays, CT scans use higher X-ray radiation levels, from relatively low dose examinations (head, neck) to higher doses for a typical coronary angiography. For nuclear medicine examinations the relative radiation levels are also generally higher than for standard X-rays – from lower (lung ventilation/perfusion) to higher (PET/CT).

## What about MRI and Ultrasound?

While Ultrasound and MRI do not use X-rays or similar radiation, they are not always available, or suitable for a number of medical conditions.

## Pregnancy and Children

### Pregnancy

Before you have an X-ray or any other form of medical imaging it is important to advise your doctor if you are pregnant, or if it's possible you're pregnant. Unborn babies are more sensitive to radiation than an adult, so it is important to take precautionary steps, which may involve an alternative examination, such as ultrasound or MRI. In the small number of cases where clear benefit may only be obtained using X-rays, medical imaging staff will take great care to ensure any dosage is kept as low as possible.

### Children

As one might expect, children are more sensitive to ionising radiation than adults and every proposal for diagnostic examination through medical imaging needs to be very carefully considered to assess the need. When it is determined that such an examination is required, medical imaging staff will take great care to keep the radiation dose as low as possible.

## Considerations

- As with any medical procedure, there is a risk associated with medical imaging examinations. Asking your doctor whether a scan is appropriate for your particular circumstances is quite reasonable.
- In considering any risk, you'll also need to consider the risk(s) associated with NOT having the medical imaging examination, which are likely to be greater.
- Medical imaging staff are highly trained, and understand the need to keep radiation doses as low as possible and commensurate with the patient's specific circumstances – such as pregnancy, age, size, shape, gender etc.
- If you have recently undertaken an X-ray, CT scan or other medical imaging examination it is important to advise your doctor before undertaking further examinations. Similarly, any chronic conditions and/or history of multiple scans should be reported to your doctor. Your doctor's understanding of your medical history will allow better informed decisions.
- If you are pregnant or believe there is a possibility you may be pregnant it is important to advise your doctor and medical imaging staff so that they can adjust radiation dosages accordingly. They may advise you to set aside/postpone your examination, or opt for a different type of examination.
- When considering the risks from radiation in medical imaging, keep in mind that everyone is exposed to low levels of radiation in normal day to day life. Make sure you assess any potential risk based on good information and consult your doctor if you have any concerns or questions.

## Remember

- The benefits of scans will almost always outweigh potential risks.
- Don't get any study you don't need.
- Keep a history of your studies (reports and images) to avoid unnecessary repeat exams.

The information presented here is of a general nature only and is not intended as a substitute for professional medical advice. Additional information on specific procedures is often available from medical imaging facilities.

## Discover more...

Information on imaging children and young people  
<http://www.healthdirect.gov.au/ctscansforkids>  
**InsideRadiology**, an Australian information website for patients and referrers by the Royal Australian and New Zealand College of Radiologists  
[www.insideradiology.com.au](http://www.insideradiology.com.au)

Radiology information for patients developed by the Radiological Society of North America and the American College of Radiology [www.radiologyinfo.org](http://www.radiologyinfo.org)

**International Atomic Energy Agency** information on the safer use of radiation in medicine for the benefit of patients <https://rpop.iaea.org/RPOP/RPoP/Content/>

[InformationFor/Patients/information-patients/index.htm](http://InformationFor/Patients/information-patients/index.htm)

**ARPANSA's Radiation Protection for the Patient Module**, which aims to support referrers in clinical practice [www.arpansa.gov.au/RPOP/Module](http://www.arpansa.gov.au/RPOP/Module)

The Australian Radiation Protection and Nuclear Safety Agency [www.arpansa.gov.au](http://www.arpansa.gov.au)

The Alliance for Radiation Safety in Pediatric Imaging [www.imagegently](http://www.imagegently)

Information for patients from the Royal Australian College of General Practitioners <http://yourgp.racgp.org.au/welcome>

