

Calderdale and Huddersfield
NHS Foundation Trust

Radiation Risks of X-rays and Scans

Information for Clinical Imaging Patients

The purpose of this leaflet is to explain the benefits of having a radiation exposure for medical imaging purposes i.e. X-rays, CT, and Fluoroscopy. It does not apply to other kinds of imaging such as ultrasound imaging and MRI imaging.

Why am I having a medical exposure?

Imaging examinations have many uses and can bring real benefits to patients including:

- To help find out what is wrong with you
- To check on progress of an illness or injury
- To help carry out an internal procedure as part of your treatment
- To provide your doctor with other clinical information

Your doctor or healthcare practitioner has referred you for a test involving ionising radiation (e.g x- rays) to help make a diagnosis or monitor your treatment. Prior to any exposure to ionising radiation the request made is checked by specially trained staff to ensure that it is the right one for you and your condition. When deciding on whether imaging is required (and what kind), the healthcare professionals involved always check that the benefit of having the imaging is greater than the risk.

Imaging examinations utilising x-rays use a beam of electromagnetic radiation to see inside your body. The radiation does not stay inside you or make you radioactive. It is the same radiation as light and radio waves but has a higher energy and is capable of causing a process known as ionisation.

Are there any risks in using ionising radiation?

We are all exposed to natural background radiation every day of our lives. This comes from the ground, the building materials around us, the air we breathe, the food we eat and even from outer space.

Each medical X-ray examination gives us a small additional dose on top of this natural background radiation. ***Table 1*** tells you how much radiation you are likely to get from different types of X-ray examination and how this may affect your cancer risk as every exposure carries a small risk of causing cancer many years or decades later.

This however needs to be put into perspective as we are all at risk of developing cancer during our lifetime. The normal risk is that this will happen to about 50% of people at some point in their life (1 in 2).

compassionate care

How much radiation will I receive?

Generally speaking the dose you receive is equivalent to something between a few days and a few years of background radiation.

All doses are kept as low as possible whilst ensuring that the images obtained are of diagnostic quality.

All our x-ray equipment is routinely maintained and subject to quality assurance tests. The radiology department works to very strict protocols and policies to ensure high standards of practice and safety.

Some examples of typical doses received are given in the table below.

Table 1

Imaging Procedure	Dose (mSv)	Equivalent number of chest X-rays	Equivalent period of natural background radiation*
Chest X-ray	0.014	1	1-2 days
Abdomen X-ray	0.43	31	8 weeks
Barium Meal	1.5	107	7 months
CT Head	1.4	100	6 months
CT Abdomen	5.6	400	25 months
CT Chest	6.6	470	2.5 years
CT Chest, Abdomen & Pelvis	10	710	3.7 years

* Uk average background radiation is 2.7mSv per year

What about children?

Long term effects from ionising radiation can take many years to come about. The risk of long term effects is increased slightly in younger people because they have more time left for them to develop. The healthcare team take account of this when deciding if a child needs an imaging examination, and the amount of radiation used is kept as low as possible.

What if I may be pregnant?

Exposure of an unborn baby to ionising radiation may cause a slight increase in the cancer risk to the baby. For this reason, examinations using radiation of the abdomen or pelvic area are usually avoided when pregnancy is possible or confirmed unless the risk of not performing the examination is greater. Imaging of parts of the body well away from the abdomen such as limbs (arms and legs) and dental X-rays do not give any significant increased risk to an unborn baby. There will be occasions where diagnosing and treating your illness is essential for your health and your unborn child. When the health benefit clearly outweighs the radiation risk, the examination may go ahead after discussing all the options, risks and benefits with you.

Consent - What if I don't want to have the examination?

You can refuse to have your imaging at any time. If you have concerns or you do not feel you have been given the sufficient information you can discuss any issues with the healthcare team.

We hope that by providing you with additional patient information you have the confidence in our standards and service.

The risk of not having the examination is that it may not be possible to find out what is wrong with you, or how best to treat you which is likely to be a greater risk to your health than the radiation risk.

What if I have more questions?

Please talk to your doctor or any of the team carrying out your imaging examination if you would like to discuss any of this information further.

Further Information:

More information about national radiation guidelines is available from the following Government websites:

Public Health England - Ionising Radiation and You

www.phe-protectionservices.org.uk/radiationandyou/

Ionising Radiation (Medical Exposures) Regulations 2017

www.legislation.gov.uk/uksi/2017/1322/pdfs/uksi_20171322_en.pdf

Public Health England - Patient dose information: guidance

https://www.gov.uk/government/publications/ionising-radiation-dose-comparisons/ ionising-radiation-dose-comparisons

If you have any comments about this leaflet or the service you have received you can contact :

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01484 342501

www.cht.nhs.uk

If you would like this information in another format or language contact the above.

Potřebujete-li tyto informace v jiném formátu nebo jazyce, obraťte se prosím na výše uvedené oddělení

Jeżeli są Państwo zainteresowani otrzymaniem tych informacji w innym formacie lub wersji językowej, prosimy skontaktować się z nami, korzystając z ww. danych kontaktowych

ਜੇ ਤੁਸੀਂ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਪ੍ਰਾਰੂਪ ਜਾਂ ਭਾਸ਼ਾ ਵਿੱਚ ਲੈਣਾ ਚਾਹੁੰਦੇ ਹੋ,

ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਉਪਰੋਕਤ ਵਿਭਾਗ ਵਿੱਚ ਸਾਡੇ ਨਾਲ ਸੰਪਰਕ ਕਰੋ।

اگر آپ کوئی معلومات کسی اور فارمیٹ یا زبان میں درکار ہوں، تو
براہِ مہربانی مندرجہ بالا شعبے میں ہم سے رابطہ کریں۔

"إذا احتجت الحصول على هذه المعلومة بشكل مغاير أو مترجمة إلى لغة مختلفة فيرجى منك الاتصال بالقسم المذكور أعلاه"