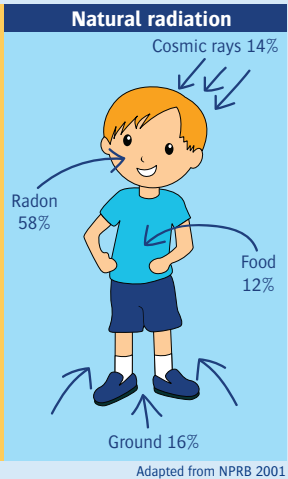




To put radiation exposure levels into perspective the table below lists the common X-ray examinations and the equivalent period of natural background radiation that gives the same radiation dose.

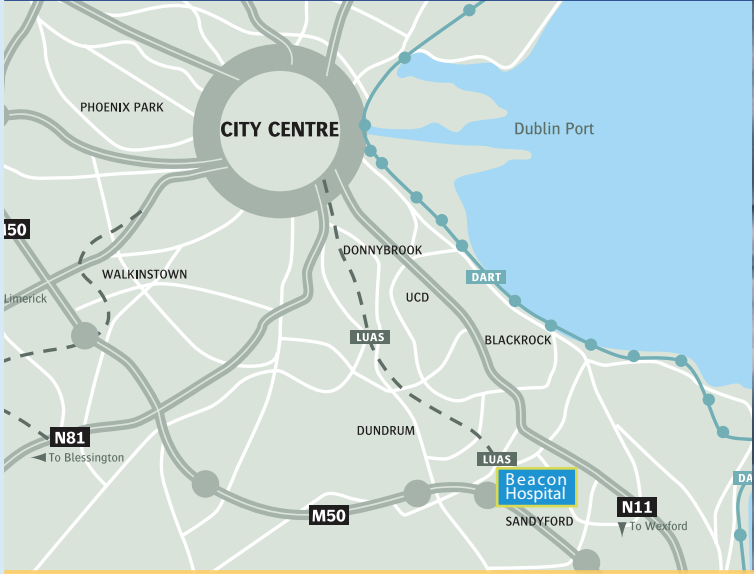


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Paediatric X-ray

X-ray examinations and their equivalent natural radiation period

X-ray Examination	1-10 year old Equivalent Natural Background Period	Adult Equivalent Natural Radiation Period
Extremity (eg. Knee)	A few hours	1.5 days
Chest	Less than 1/2 day	3 days
Lumbar spine	1- 2 days	14 months
Pelvis	1/2 to 1 day	6 months
Abdomen	1 to 2 days	9 months
CT – Head		1 year
CT – Abdomen		4 years



If you have any queries as to the justification of this examination please ask your referring doctor.



What is radiation?

Radiation is a form of electrical and magnetic disturbance that transports energy. For example it is radiation that brings energy to us from the sun.

Where does it come from?

Radiation can come from natural sources like the sun, the earth, and the air. Radiation can also be created artificially in a variety of sources such as microwave ovens, ultra-violet lamps, X-ray machines, and radioactive sources.

Are there different forms of radiation?

Yes. Radiation from microwave ovens and mobile phones is called non-ionising radiation. X-rays are called ionising radiation because they cause electrical charges (ions) to be created in the material they pass through.

Is it possible to avoid being exposed to radiation?

No. We are all exposed to ionising radiation from the sun, from materials in the earth, from naturally occurring radioactive substances in our bodies and from gases, like Radon, in the air we breathe. This is sometimes called 'background radiation'.

On average each person in Ireland gets 3,000 microSieverts of ionising radiation each year from natural sources. In some parts of the country the radiation levels can get up to 100,000 microSieverts each year.

People who travel by aeroplane get an additional 5 microSieverts of radiation for every hour of the flight.

Is background radiation different from artificial radiation?

No. Natural radiation and man-made radiation cause identical effects in the body.

Is radiation dangerous?

It has been recognised for a long time that exposure to large amounts of radiation can be harmful to the body. People who are exposed to large amounts of radiation are more likely to develop some forms of cancer, for example. There is no direct evidence that low exposures to radiation are harmful but it is considered prudent to limit exposure to the lowest amount possible.

Is there control on the use of radiation in hospitals?

Yes. All human exposure to medical radiation must be justified in advance of the procedure. Procedures are only justified if the benefit to the patient is greater than the risk. Hospital staff are conscious of the need to limit patient exposure and strive to reduce radiation levels to the lowest level possible.

Can the patient take any steps to protect against radiation?

If you have had an X-ray in the recent past, inform a staff member to ensure that tests are not duplicated unnecessarily. For some X-ray tests the radiographer will use a lead rubber apron to protect parts of your body against scattered radiation.

Are there any further precautions that need to be taken?

If the patient is a woman in her childbearing years then hospital staff must also consider the possibility that the patient may be pregnant and that a foetus must also be protected from any radiation risks. Female patients of childbearing years will be asked to comply with hospital protocols to limit radiation effects to an unsuspected foetus. If you are unsure whether you are pregnant or not, please mention this to the radiographer before the start of your X-ray.

Can I stay with or hold my child during their X-ray examination even if there is a possibility I might be pregnant?

Yes. You will be asked to wear a lead rubber apron, which will reduce the amount of scattered radiation you are exposed to. The radiation exposure levels to an unsuspected foetus, protected by the lead rubber apron, will be less than an hour of natural background radiation.

