

## What is Plain radiography/X-rays?

Radiography is the imaging of body structures using X-rays which are a form of radiation similar to visible light, radiowaves and microwaves. X-radiation is special because it has a very high energy level that allows the X-ray beam to penetrate through the body and create an image or picture.

The image is created due to the X-ray beam being absorbed differently by different structures or parts in the body. A dense structure like bone absorbs a high percentage of the X-ray beam (which appears light grey on the image), whilst low density structures like soft tissues absorb a small percentage (which appears dark grey on the image). The body has many different structures of varying densities and this difference creates a picture or image.



**Figure 1: Chest X-ray**

Bone (collar bone and back) appears light grey. Air (lungs and stomach gas) appears dark grey.

## How do I prepare for Plain radiography/X-rays?

For a plain X-ray there are no specific preparation instructions but there are some important things you need to do:

- You must bring the X-ray request form or **referral letter** from your doctor. No X-ray examination can be performed without it as this is a legal requirement.
- Bring all of relevant **previous X-ray** images and reports for comparison report.
- Please inform the radiographer who is performing the X-ray if there is any chance you may be **pregnant**. Safety of the patient and unborn child is the number one priority so a different approach or a test may be needed.
- Be prepared to **wear a gown** as some clothing can make it difficult to see the images clearly. This ensures the X-ray is of the highest quality.
- Be prepared to **remove certain items** like watches, necklaces, dentures and certain types of clothing that contain dense or metal objects such as zips that may interfere with the quality of the image.

## What happens during Plain Radiography/X-ray?

A radiographer (a trained X-ray technologist) will call your name and escort you through to an X-ray examination room. They will explain the procedure and prepare you accordingly.

Depending on the part of your body being examined you may be asked to stand, sit or lie down while the x-ray is taken. The number of images or the speed of the test will also vary on this. It is important that you stay completely still when the radiographer instructs you to, as any movement may create a blurred image.

After the X-rays have been performed, the radiographer has to process each X-ray and check the results for quality. This can sometimes take several minutes. Sometimes there will be a need for additional images to be taken to obtain more information to help the radiologist make a diagnosis. There is no need for concern if this happens as it is quite common. In most cases the

extra X-rays are performed to obtain a better view of your anatomy or body structure, not because there is a problem. The radiographer will instruct you when the procedure is finished. You may wish to ask them when the results will be available.

A radiologist (film interpreting specialist doctor) then carefully assesses the images, makes a diagnosis and produces a written report on the findings, which is sent to your referring doctor.

The entire process is straightforward and you will not feel anything strange or feel any different during the examination. You are welcome to ask questions at any stage.

## How long do Plain radiography/X-rays take?

It usually takes less than 15 minutes for an entire X-ray procedure. This obviously depends on the number of parts of your body being examined and your mobility and our general health. In most cases, the area being examined needs to be viewed from different directions to obtain enough information to make the diagnosis and this may require you to move into different positions.

For example, a simple chest X-ray on an able and willing patient could take less than 1 minute. However, a distressed patient needing a full spine, pelvis, both shoulders and both legs X-rayed could take 45 minutes.

People with disabilities and children will also take longer, particularly if they find it difficult to keep still or to cooperate with or understand instructions given by the radiographer.

## What are the risks of Plain X-rays?

Generally, the benefit of the X-ray procedure is far more important than the small estimated risk. At the radiation dose levels that are used in diagnostic radiography there is little or no evidence of health effects.

There are two major risks to health that occur as a result of exposure to medical ionizing radiation (which is the kind of radiation in X-rays). These are:

- Cancer occurring many years after the radiation exposure; and
- Health problems in the children born to people exposed to radiation because of damage to the reproductive cells in the body.

To put this all into perspective, a patient would need to have approximately 38 chest X-rays to receive an amount of radiation similar to that of normal background radiation that everyone receives for one year from the environment.

## Who does the Plain radiography/X-rays?

A radiographer or medical imaging technologist (MIT) is a health professional who performs diagnostic radiography. A radiologist is a specialist medical doctor who reviews and interprets the images and provides a written report of the test to your referring doctor.

## How do I get my results?

The written report and images will be electronically or physically delivered to your referring doctor as soon as is practicable.

Alternatively you can pick it up or take films only and arrange to fax the report when it is available. Please let us know of your or your doctor's preference. It is very important that you discuss the results with your referring doctor so that they can explain what the results mean for you.

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