

How do I know I'm safe?

It is reasonable to ask the technologists at the facility where you are getting your X-ray about the process they follow to reduce your radiation exposure. Your imaging provider should be able to provide you with information about how they reduce radiation doses.

At Dartmouth-Hitchcock, we require that all medical imagers are Registered Radiologic Technologists RT(R) by the American Registry of Radiologic Technologists. They are also required to have at least 24 continuing education credits in their professional field every two years. Each radiology student is supervised at all times by a Registered Radiologic Technologist.

At Dartmouth-Hitchcock, we make sure to carefully review your x-ray request. We test all radiographic equipment and adhere to comprehensive and stringent – but voluntary – guidelines established by the American College of Radiology and the Joint Commission. Our staff Diagnostic Physicist makes sure that the equipment is performing as it should and assists in the equipment installations and control of radiation hazards. Our Radiation Safety Officer is responsible for the safety and protection of those using radiologic materials and keeps detailed records to ensure safety and compliance with local, state and federal laws.

More information

- First, ask your doctor that requested the exam.
- Ask your X-ray technologist or radiology nurse about any concerns you may have—we're ready to help.
- Radiologyinfo.org is an excellent online source for information on X-ray imaging, exam types and radiation safety.
- The American Society for Radiologic Technologists offers an up-to-date website on all aspects of medical imaging: www.asrt.org.
- ImageGently™ is a national campaign Dartmouth-Hitchcock is actively involved in for radiation safety in pediatric imaging. Read more at: www.imagegently.org.

Find out more about radiation safety on The American College of Radiology website: www.acr.org/safety and American Registry of Radiologic Technologists website: www.arrt.org

Questions

If you have any questions regarding X-rays or our safety measures, please call the Dartmouth-Hitchcock Radiology Department at (603) 650-8445 and ask to speak to one of the X-ray technologists. We will be happy to answer your questions to put you at ease before your appointment.



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X-Ray

Information for Patients



201502-44



What are X-rays?

X-rays are invisible beams of ionizing radiation that pass through the body. These beams are changed when they meet structures in the body, and then create images. The result is a two-dimensional picture that shows bones, lungs and organs. We use lead shields to decrease the exposure to radiation in areas of your body that are not being imaged. X-rays are produced only when a switch is on for a moment. As with visible light, no radiation remains after the switch is turned off.

X-ray safety

Our radiologists and X-ray technologists have been trained to use the minimum amount of radiation necessary to get the needed results. When imaging is done properly and only when medically necessary, there are minimal risks. The amount of radiation used in most exams is very small. The benefits greatly outnumber the potential harms.

X-rays over your lifetime

If you have had frequent X-ray exams, it is a good idea for you to keep a record of your X-ray history. This record can help your doctor make an informed decision about whether an X-ray is the right choice. It is also very important to tell your doctor if you are pregnant before having an X-ray.

The radiation used in X-rays and CT scans is similar to background radiation we are exposed to daily. This comparison may help you understand how much radiation you are receiving.

Radiation source	Background radiation equivalent
Background	1 day
Chest X-ray (single)	1 day
Head CT scan	up to 8 months
Abdominal CT scan	up to 20 months

*from www.imagegently.org, "What Parents Should Know about CT Scans for Children. Medical Radiation Safety.

How much radiation is used in these exams?

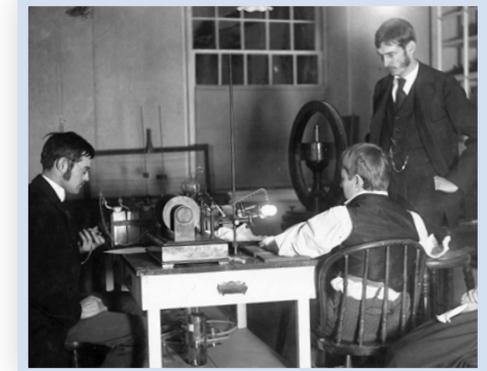
The amount of radiation we absorb from an X-ray depends on many factors, most importantly: the type of X-ray being done and the area of the body being imaged and its size. Radiation can be measured in various ways. Measurements can estimate the radiation dose delivered to the whole body or to an individual organ. Because every patient differs in size and shape, different X-ray settings must be used.

How do we minimize radiation risk?

We make sure that you are exposed to the smallest amount of radiation possible during an imaging study by following these guidelines:

- Image only when there is a clear medical benefit.
- Use the lowest amount of radiation possible to create the required X-ray image.
- Image only the indicated area and use proper lead shielding.
- Use other diagnostic studies (such as ultrasound or MRI) when possible.

How exposures have changed



The first X-ray took 20 minutes of exposure to create an image.



The modern day hand X-ray takes 20 milliseconds of exposure to create an image.