Radiation Exposure in Medical Tests

What is radiation?

Radiation is a form of energy used in common medical tests. Radiation can pass through body tissues and show up on a camera to create detailed images of what's happening in the body. The images help your doctor diagnose or treat a problem.

Common imaging procedures that use radiation are:

- X-rays
- Mammograms
- Bone density scans
- CT scans
- Angiograms
- Nuclear medicine exams

(Note: MRI and ultrasound tests do not use radiation that puts you at risk.)

Is there a risk from radiation?

We're all exposed to radiation 24 hours a day from many different sources like the sun, the ground, the air, and even food.

Medical tests use very small amounts of radiation. For example, a chest x-ray exposes you to about the same amount of radiation as living in your natural surroundings for about 10 days.

There is always risk of cancer when people are exposed to radiation. With medical tests, the risks of radiation exposure are often very low compared to the benefits, such as finding cancer or another disease in its early stages.

For most medical tests, the added cancer risk is so small that it can't be measured on an individual basis. Whether or not we have any medical tests, 42 out of 100 people will develop cancer in their lifetime.

What do I need to do next?

1. If you are pregnant or might be pregnant, tell your doctor. Some procedures that use radiation are not appropriate in pregnancy, unless the medical need is severe.
2. Keep a history of all your procedures involving radiation, and share this information with your doctor. Find a printable imaging record at **radiologyinfo.org/en/safety/**.
3. Talk to your doctor about what imaging is best for your condition and why.

Am I more at risk as I get older?

The cancer risk from an imaging test is lower the older a person gets, and the highest risk is for children. Doctors take special care in choosing imaging tests for children, and facilities adjust the radiation to fit each individual child. For more information on radiation for children, see the Image Gently site at **imagegently.org**.

Wise Choices

Discuss planned imaging procedures and alternatives with your doctor. Be sure to ask any questions you may have, such as:

- What will this procedure tell you?
- How will what you learn improve my care?
- What's the risk of NOT having this procedure?

What can I do to increase my safety?

Ask your healthcare providers if they take these steps to increase your safety with medical radiation:

- Use the **least amount of radiation** necessary to produce diagnostic quality images.
- Regularly train imaging staff in radiation safety.
- Regularly inspect and maintaining imaging equipment.
- Participate in the **Image Wisely** and **Image Gently** campaigns (see links below). These campaigns require a commitment to radiation safety and education.
- **Choose imaging tests wisely.** For some conditions (such as low back pain or osteoporosis), imaging tests may not really help with diagnosis or treatment enough to justify the cost or exposing you to unnecessary radiation.

Your doctor may check your cumulative exposure as part of choosing which type of test is better for your medical needs. In some cases, a medical test that does not use radiation can be used as an alternative. In most cases, the benefit of having the procedure is worth the slightly increased cancer risk from the radiation involved.

Questions for my doctor

Where can I learn more?

To learn more about:

- Tests and treatments, go to **radiologyinfo.org**
- Radiation safety for adults, go to **imagewisely.org**
- Radiation safety for children, go to **imagegently.org**
- Radiation safety in pregnancy, go to **hps.org/publicinformation/ate/cat4.html**