

Frequently Asked Questions—Parents

IS THERE AN INCREASED RISK OF CANCER FROM MEDICAL RADIATION, ESPECIALLY CT SCANS?

While no one can point to a single individual and say that their cancer was caused by medical radiation, there is evidence that exposures to radiation levels found during CT scans may slightly increase the risk of future cancer. The risk for developing cancer is debated and variable, and may be zero, but estimates also range from about 1 in 500 to 1 in 10,000 fatal cancers from a single CT scan. Since the risk of developing fatal cancer in an individual is about 1 in 5 during a lifetime, the extra risk from CT is very small.

Like any medical test, the beneficial information gained from the test should outweigh the risk of having the test performed. CT is a very powerful and valuable imaging technique that can provide important and even life-saving information. Sometimes, however, imaging tests like ultrasound and magnetic resonance imaging (MRI) can provide the same information as CT but not expose your child to any radiation.

WHAT QUESTIONS SHOULD I ASK MY CHILD'S PROVIDERS OF CARE?

You should ask your doctor and imaging provider whether these alternatives are appropriate for your child's situation. If a CT is the best test, then make sure that your imaging provider uses appropriate low dose techniques to minimize radiation exposure during the test. Some facilities that perform CT scans on adults do not use radiation dose reduction techniques when scanning children. You won't know unless you ask, and it is reasonable and within your rights to do so. Your imaging provider should be able to provide you with information about what they do to reduce radiation doses during CT. Other things to ask about include whether the facility has American College of Radiology accreditation, whether the CT technologists are credentialed, and if the person interpreting the studies is a board-certified radiologist or pediatric radiologist.

WHAT ARE THE ALTERNATIVES TO CT SCANS?

Computed tomography (CT) is a valuable and readily available way to diagnose a variety of conditions. However, in many cases there are other ways to obtain the same medical diagnostic information without exposing a child to radiation:

- **Ultrasound (US)** is particularly valuable in children, since their smaller size and lesser body fat allows for high quality and high resolution imaging. Instead of passing X-rays through the body, US uses pulses of sound to create images. Images are obtained by placing an US transducer (also called a probe) on the child using a special gel that allows the sound waves to get through the skin. US can image almost any area of the body; the only limitations are that US cannot "see" through bone or air. US can also provide information about blood flow, and thus can help evaluate the function of organs as well as their anatomy.
- **Magnetic resonance imaging (MRI)** creates images of the body by using magnets and radio waves, and does not expose patients to radiation. The main disadvantage of MRI in children is the need for the patient to be very still, as even small amounts of motion will ruin the image. This means that younger children often need sedation, which requires specialized equipment and staff training not available from all imaging providers. Newer and faster MRI techniques are helping to lessen problems from patient motion, and coaching and distraction techniques can help even very young children successfully complete an MRI exam.

Depending upon the clinical situation, CT may still be the best and most reasonable study. Properly performed, the potential risks of CT can be minimized, and the small potential risk worth the information obtained. In some situations, US or MRI may be equally viable imaging options. If you think that US or MRI might be an option for your child, you should ask your child's clinical or imaging physician.

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