

Alliance

**For Radiation Safety
In Pediatric Imaging**

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Founding Organizations

The Society for Pediatric Radiology
American Association of Physicists in Medicine
American College of Radiology
American Society of Radiologic Technologists



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Contact:

Coreen Bell
Alliance Administrative Director
Department of Radiology, MLC 5031
Cincinnati Children's Hospital Medical Center
3333 Burnet Avenue
Cincinnati, OH 45229-3039
513-803-1599
imagegently@AOL.com

Jennifer Boylan, MA
The Society for Pediatric Radiology
1891 Preston White Drive
Reston, VA 20191
703-648-0681
FAX 703-880-0013
jboylan@acr.org

www.imagegently.org



A letter to parents regarding medical imaging in children from the **Alliance for Radiation Safety in Pediatric Imaging**

Dear Parents and Caregivers,

A recent scientific study (Mathews JC et al. BMJ 2013; 346:f2360doi:10.113/bmj.f2360) that discusses the potential risk of cancer from CT scans in children has just been published and is receiving attention in the media. The Alliance for Radiation Safety in Pediatric Imaging (an Alliance made up of 70 medical organizations worldwide), is committed to radiation protection for children. We would like to provide some frame of reference for parents and caregivers with respect to their concerns about possible excess cancer risk in children after CT scans.

So, let's talk about this article.

Parents or caregivers are responsible to ensure that their child is well-cared for. When a child becomes sick, parents are concerned about their child's illness and take their child to their physician such as a pediatrician or family doctor. As scientific articles on the risk from radiation from CT scans in children become available, parents may become concerned about whether or not they should allow their child to have a CT scan or if their child had a scan, whether or not it was the right thing to do.

This scientific study needs to be kept in perspective. Not all medical professionals agree on the risk of cancer after a CT scan. Early studies tried to estimate the risk of cancer that could occur by looking at Japanese atomic bomb survivors after World War II. It makes sense that a CT scan in a medical setting is very different than the injuries sustained in Japan. Yet, scientists knew from that study that high doses of radiation (higher than is used in medical imaging) could cause cancer. More recent studies such as the study noted above, uses a large medical database or list to record and track actual CT scans in children who live in Australia. This group of scientists add to our scientific knowledge as to whether CT scans cause cancer and if so, what the small risk may be. These are the types of studies in creating additional risks of cancer.

This type of report may cause parents to question whether or not to allow their child to have a CT scan. Parents should also understand how the CT scan will **benefit their child** before trying to answer this question. The Image Gently campaign believes that parents should play an active role in their child's healthcare and ask the doctor who is taking care of their child, "*How will the CT scans help their child.*" If the CT scan is abnormal, how will this change what the doctor will do? If the test is negative, parents may want to ask how a "normal" scan will help the doctor in finding out what is wrong with their child.

Parents are also encouraged to ask:

- What is the name of the medical imaging test?
- Does the test use radiation to create the image?
- Are there other tests or actions (such as watching the child for several hours) that could be substituted for the CT scan?
- Will my child receive a "kid-sized" radiation dose?
- Have the facility and radiology professionals done all they can to lower radiation dose as much as possible to answer their doctor's question?

If parents get answers to their questions, and the medical benefit to the child outweighs the small risk, parents should not hesitate to permit the scan. Sometimes not doing a scan may harm a child. It is only through a partnership of the parent with their doctor, in consultation with the radiologist that a scan should be performed.

One of the things that parents need to know is that the excess radiation risk from CT scans is so small that it took 11 million children to try to study this question. In other words, the risk to one child is so low that a correct study requires thousands of children who have had CT scans. In addition, the idea of risk is a very difficult subject to understand. When talking about risk, you need to think about risk in a large group or population of children and not apply the results to a single child. Another example of risk is that if you buy a lottery ticket, the chance of your winning may be 1 in 1 million. If you buy two lottery tickets your chance of winning has doubled, yet the chance of winning a lottery is still very, very small. Also, the CT scans discussed in this new study are being done in children who seem sick in some way!

This new study adds to the doctor's knowledge from a report from 2006 (Biological Effects from Ionizing Radiation). Since 2001, pediatric radiologists (specialists in x-ray who care for children) have been leaders in the medical community advocating for performing scans only when needed and when there is clear benefit to the child. Since 2007, the Image Gently campaign has raised awareness, provided education, advocated for radiation protection for children and emphasized the need for child-sizing CT radiation dose. As further scientific studies add important information, parents and doctors can better decide how the very small risk of radiation from a CT scan should be taken into account when performing a CT scan on a sick child.

Sincerely,

The Alliance for Radiation Safety in Pediatric Imaging

** The Alliance for Radiation Safety in Pediatric Imaging (the Image Gently campaign) mission is to raise awareness and to provide free online education materials to those who perform medical imaging in children to lower their radiation doses to as low as possible. Image Gently also provides parent education materials to keep parents better informed – including an imaging record card to help you keep track of the imaging care that your child receives. We also work with groups such as the United States Food and Drug Administration and the makers of imaging equipment to advocate about the importance of radiation safety for children. Please visit our website at www.imagegently.org.