

Alliance

For Radiation Safety In Pediatric Imaging



Founding Organizations

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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 (Pearce MS et al. Lancet DOI 10.1016/S0140-0736(12)60815-0) on the potential risk of cancer from CT scans in children is receiving a great deal of media attention. The Alliance for Radiation Safety in Pediatric Imaging would like to comment on this important issue. The Alliance for Radiation Safety in Pediatric Imaging, comprised of more than 70 medical organizations worldwide, is committed to radiation protection for children. The Alliance started the Image Gently campaign in 2007 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.

We fully understand that parents will have many questions about this issue. Most questions are a result of their child having a medical imaging test, usually a CT scan. After the scan, parents may become concerned about the ionizing radiation used during the scan. We would like to share with you some of key points from the discussions we have had with parents to answer their questions.

Some of you may remember the original STAR TREK program where the doctor (Dr. McCoy) was able to take a small device, wave it over the his patient's body and immediately know the medical problem his patient had! It was astounding that a small device could painlessly provide so many answers with no apparent ill effects. We truly believe that in medicine we are on the way to painless, instantaneous evaluation of our patient's health problems, but we are not there yet.

Modern medical care has amazing technology that does allow us to see inside a child's body, often very quickly with little or no pain. For example, ultrasound which uses sound waves instead of ionizing radiation, can be used to answer some, but not all, questions in medical imaging. For example, ultrasound does a great job of looking for gallstones or fluid around the lung, but it cannot see inside the air-filled lung tissue. It cannot be used to look at the brain, except in infants where the fontanel or "soft spot" is still open. Magnetic resonance imaging (MRI) is another way to look inside the body that uses no ionizing radiation. For this test, the child needs to be motionless for at least 30 minutes, something most children younger than 8 years old cannot do. Therefore, younger children often require sedation (which has small medical risks as well). CT scans are a wonderful way of seeing inside the body in less than a minute and require no sedation. The scans use a small amount of ionizing radiation.

Listed below are some of the questions we have received from parents:

Is there is risk from a medical test that uses ionizing radiation? What is the risk? And will it cause cancer in my child? These are the most frequent questions that the experts from the Image Gently campaign get asked.

Here is what we tell the parents we speak with... "We do not know if medical imaging causes cancer. But we should remain cautious and act as if there is a small risk." Continued study of this important issue is needed and is ongoing. Over the many years that doctors and other scientists have studied this question that show results on either side of this question with differing opinions regarding potential risks from these exams. This most recent study suggests that there is a very small risk from CT scans in children based on their study which spans the years from the early 1980's through 2008. Now, you might say that this is not helpful. As a parent you understandably want a definite answer. However, at present, medical science does not have the final answer.

Fortunately, this may not be as much of a problem as it would seem. If we follow the Image Gently philosophy of being cautious, and perform imaging tests only when necessary and at the lowest possible radiation dose to answer the clinical question, then we maximize the benefits of these exams and minimize any potential risk. Also know that significant advances in patient safety have been achieved since the time period covered in this study. As the authors themselves say in their report, modern CT scanners use far lower radiation doses and medical protocols continue to change to allow even lower doses to be used. Those in medical imaging caring for children are also far more aware of safety measures than previously. The good thing is that a great many imaging providers are doing so.

Here is an example of what we mean. If your child fell from a short height, say a child's chair onto a carpeted floor, stayed awake, had no bruise, and was acting fine, then there is good medical evidence that tells us that the chance of this child having an injury to the brain is very low. In this case, even though you brought your child to the emergency room, the emergency room doctor may not decide to do a CT scan but would watch your child for a while in the emergency room and ask you to watch your child once you are home. There is evidence through medical guidelines for the emergency room doctor that this plan would be a good approach. If however, your child was in a car accident and in spite of a seatbelt, was injured, there should be no delay in having a CT scan to make sure that there is no life-threatening injury that needs surgery. This

simple example is more clear than most. Sometimes a child is brought to the emergency room and the problem is not as clear. The child has belly pain or acts sleepy or cranky. This is the time for you as parents to ask questions to work together with the doctors. Here are some questions to ask your doctor:

- What is the name of the test you would like to do on my child?
- Does the test involve ionizing radiation?
- How will having this exam improve my child's health care?
- Are there alternatives that do not use radiation which are equally as good?
- Will my child receive a "kid-size" radiation dose?
- Is this facility accredited by the American College of Radiology (ACR-accredited)?

When there is a concern about radiation, parents should not become scared, but should learn more about the test and feel it is OK to ask questions.

So now, what about when the test has already happened? Again, there is no 100% certainty of any effect for your child and if there is any affect it is thought to be very small. Sometimes even a test with "normal" results can be very helpful for the doctor who requested the test to know. In the example of the bad car accident... now the doctors can work on fixing the broken bone, since the CT scan helped them know the brain is OK.

It is important to remember that we all take risks in everyday life for a benefit. Think about driving to the grocery store for food for dinner. The benefit of getting the food outweighs the small risk of a car accident. The risk of a car accident may be higher than any potential risk from a CT scan (from current scientific studies) in a population or group of patients. When risk is discussed such as risk from a car accident, the risk applies to a population of people or children, not one person or child. The risks are average risks. This makes scientific studies even harder to apply to a single person or child...and harder to understand as to how it applies to your child. Yet, these types of risk studies are very important as we learn more and it helps us do a better job in improving care and decreasing risk for our patients.

In addition, the estimated radiation dose from CT of the abdomen among a group of children's hospitals in the United States, recently reported at a national pediatric radiology meeting was 40% lower than CT dose estimates from the United Kingdom from the early 2000s. This means that radiation dose from CT scans is decreasing. Also, new technology from CT manufacturers will continue to lower this estimated dose. This is good news.

Finally, in the United States, there is an approximately 40% chance of being diagnosed with cancer during our lifetime. So, cancer is a relatively common disease in this country. Currently, there is no way to know if a cancer occurs if it was a result of genes or inheriting this tendency from your parents, from the environment or a combination of these and other effects.

It is important as parents and caregivers to be thoughtful, to ask questions and to partner with your doctor in the care of your child. It means realizing that there is risk in our daily lives when we do needed and important actions and we should not be fearful, but work to minimize the risk. This same approach should be used in medical care.

We hope you have found this letter helpful in your understanding of medical imaging and its benefits and small risks for your child. We welcome your ideas and comments about our website (www.imagegently.com). You may contact us at our email address at: imagegently@aol.com.

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