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NEWS

RSNA Press Release

Benefits of Childhood CT Scans Outweigh Risks

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OAK BROOK, Ill. (June 6, 2012) — A newly published study in *The Lancet* reports that cumulative radiation exposure from multiple computed tomography (CT) scans during childhood could increase the risk of developing some forms of cancer later in life. While these findings may be alarming, the Radiological Society of North America urges parents not to forego necessary and potentially life-saving medical imaging exams for their children due to concerns about potential harmful effects of radiation later in life.

"It would be tragic if parents decided not to have a needed CT scan for their child because of this article," said G. Donald Frey, Ph.D., professor of radiology at the Medical University of South Carolina. "If a parent is concerned about the risk of a CT scan, they should consult their pediatrician, a radiologist or a medical physicist."

Advancements in technology have made CT a vital and accurate tool for rapid diagnostic evaluation of serious illness or injury in children. As the *Lancet* study points out, decreased scan times are especially helpful in eliminating the need for sedation in many pediatric cases.

However, the relatively higher radiation doses associated with CT, compared to most other imaging exams, can be a source of worry among parents. A child's organs are more sensitive to the effects of radiation than those of an adult, and children have a longer remaining life expectancy in which cancer may potentially form.

"Radiologists, and pediatric radiologists in particular, are mindful of the need to use only the appropriate amount of radiation as is necessary for performing CT examinations," said Donald Frush, M.D., chief of pediatric radiology at Duke University Medical Center. "Those that image children care deeply for the quality and safety of the patients they treat, and these professionals continue to advance the science and take measures to provide a valuable service—in the safest manner possible—benefiting the children and those who care for them."

Over the past decade, great strides have been made in dose reduction and in tailoring radiation dose to the individual patient, so that a typical radiation dose delivered to a child is now significantly less that that delivered to an adult undergoing the same CT procedure.

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The *Lancet* study focused on pediatric patients who underwent CT scans at UK hospitals between 1985 and 2002, when radiation doses were much higher. Even so, the overall projected brain cancer or leukemia incidence among these patients was increased by a factor of only 1 in 10,000 over the next decade after exposure. The study authors noted that the lifetime absolute cancer risks found in the study are very small compared with the lifetime risk involved in the general population.

"In recent years, there has been a major effort to reduce doses from pediatric CT scanning. Thus, the risk has been sharply reduced," Dr. Frey said. "This study points out that even using the higher doses that were common before pediatric dose reduction techniques became widespread, the probability of not getting leukemia from a head CT scan was 99.99 percent."

It is important that parents weigh the benefits of an exam against any potential risk and discuss concerns they have with the child's pediatrician or radiologist. For an individual child, the risks of CT, when used appropriately, are small compared to the benefit of a swift and accurate diagnosis.

"To simply provide risks of an examination such as CT outside of the context of benefits is difficult to defend," Dr. Frush said. "It's like talking about the risks of driving a car or many other daily activities without the landscape of the benefits provided."

The study authors emphasized that dose-reduction efforts should remain a priority but that the immediate benefits of CT outweigh the long-term risks in many settings.

For more information on pediatric CT, visit *RadiologyInfo.org* or *ImageGently.org*.

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