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Cancer Health Center

Can CT Scans Raise Cancer Risk?

Jump in CT Scans May Lead to More Cancer, Experts Predict

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WebMD Health News

Reviewed by Louise Chang, MD

Nov. 28, 2007 — As many as 20 million adults and 1 million children in the U.S. receive unnecessary computed tomography (CT) scans each year, potentially causing thousands of excess cancers in decades to come, researchers say.

Writing in Wednesday's issue of *The New England Journal of Medicine*, the Columbia University researchers warned that the dramatic rise in CT usage to diagnose medical problems and screen for disease could pose a significant risk to public health.

Unlike conventional X-rays, which capture a single snapshot image, CT scanning generates a three-dimensional picture involving multiple X-ray images.

More than 62 million CT scans are performed annually in the U.S., up from only 3 million in 1980.

CT scans deliver far more radiation than conventional X-rays — between 50 and 200 times as much, says David J. Brenner, PhD, of Columbia's Center for Radiological Research.

As a result, the average radiation dose people in the U.S. get has nearly doubled since 1980, he tells WebMD.

Based on current usage, Brenner and Columbia colleague Eric J. Hall, PhD, estimate that within two or three decades, 1.5% to 2% of all cancers in the U.S. will be caused by exposure to CT scans.

"This may be acceptable if it is clear that the benefits of CT outweigh the risk," Brenner says. "But we believe that a good number of scans being performed today are not really medically necessary and that many others could involve lower radiation doses."

Children are a special concern, he says, because they are much more sensitive to radiation exposure than adults and they have more years to develop radiation-related cancers.

Bomb Survivors and CT Risk

In a Tuesday news conference, Brenner and Hall said the dose of radiation delivered in one or two CT scans is roughly equivalent to doses received by atomic bomb survivors in Japan who were 2 miles away from the blast sites when the bombs hit.

Studies showing a rise in cancers among these survivors decades after the atomic blasts led to their estimate of risk among people having CT scans today.

American College of Radiology (ACR) Board of Chancellors chairman Ari Van Moore Jr., MD, acknowledges that the increase in CT usage may lead to more cancers. But he adds that it is impossible to quantify the risk based on the studies of Hiroshima and Nagasaki bomb survivors.

"You can't equate the radiation you get from CT to that from an atomic bomb," he says. "Saying that 2% of all

cancers will be caused by CT scans is nothing but a guess at this point."

But Moore tells WebMD that the ACR is concerned about unnecessary radiation exposure from medical imaging.

In a position statement published earlier this year, an ACR task force acknowledged that the rapid growth of CT and other types of scanning may "result in an increased incidence of radiation-related cancer in the not-too-distant future."

1 | 2 [NEXT PAGE >](#)

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