

Radiation Risk. Why you should think twice before getting a CT scan

By Alice Park

IT'S NO SECRET THAT SOME MEDICAL EXAMS EXPOSE PATIENTS to harmful radiation. But how much is too much?

Recent studies have raised the alarm about one increasingly common source: the computed tomography (CT) scan, which doctors use to diagnose and treat everything from concussions to infections to cancer. Dr. Rebecca Smith-Bindman of the University of California, San Francisco, and her team report in one study that usage has tripled since 1996—a concern, since CT devices tend to emit much more radiation than conventional X-rays in order to take detailed pictures of internal organs. For children, the risk may be especially high. A recently released study by a group of international researchers, which took place over 23 years, found that otherwise healthy children who received CT scans after falls or accidents or to diagnose infections were three times as likely to develop brain cancer and four times as likely to be diagnosed with leukemia as those who opted out of the scans.

Experts are divided over how to interpret these findings for worried patients. The Radiological Society of North America maintains that the absolute risk of developing cancer from the scans is small and that the benefits of diagnosing potential health problems generally justify that risk. "Although there is a tripling of the risk, we're talking about tripling something small," says Mark Pearce of Newcastle University, one of the authors of the children's study. Other radiologists, including Smith-Bindman, argue that the scans are overused in part because they are so easy to administer; indeed, many patients come to expect CT scans, and doctors may feel obligated to order them out of fear of missing a diagnosis.

Still, the risks associated with radiation exposure should give more physicians pause and push them to re-evaluate when the tests are truly justified. "We should step back and decide that if we're going to image a patient, that we justify that image for every patient," says Smith-Bindman.

Radiation doses
(in mSv)

CONVENTIONAL CHEST X-RAY
0.1

STANDARD CHEST CT SCAN
7

Average radiation exposure over a year (in mSv)

FROM MEDICAL EXAMS
3

FROM ATMOSPHERE AND EARTH
3.1

1,400
dental
X-rays

240
five-hour
flights

70,000
back-scatter
airport
scans

19 years
of smoking
a pack of
cigarettes
per day