EDITORIAL

Are Radiation Levels in TSA Body Scanners Too High?

Lori Fingerhut

In March of 2010, the Transportation Security Administration began widespread employment of full body scanners in major airports. Currently used by some seventy-five to eighty national airports, the scanners provide added security because of their ability to detect both metallic and non-metallic items that may of threat, such as include weaponry and explosives. Since their inception, there has been much speculation about the safety of full body scanners because of the possible risks produced by the radiation used. While the TSA has stated that the scanners pose no threat to an individual's health, many doctors, scientists, and lawmakers are calling for further investigation to ensure that this is actually true.

Two forms of advanced imaging technology are utilized by the TSA: a millimeter wave unit and a backscatter unit. The millimeter wave unit uses electromagnetic waves to create an image while backscatter units use small doses of ionizing radiation. According to the TSA, the amount of energy from cell phone radio waves is more than a thousand times greater than the amount produced by the millimeter wave imaging units. Under even greater scrutiny, though, are the backscatter imaging units. Similar to the millimeter wave units, the TSA has maintained that the levels of radiation administered by the backscatter units are less than the amount of radiation a person would come across naturally. The amount of radiation an individual receives from a single backscatter scan is equal to radiation exposure from two minutes of flying on an airplane. Meanwhile, after scanner use became more extensive, it took little time for researchers to begin voicing concerns about the doses of radiation emitted by the scanners, especially relating to the possible increased risk for some of developing cancer.

David Brenner, director of Columbia University's Center for Radiological Research, explains that his biggest concern is not the dose of radiation emitted by these machines, but instead the number of people who will be exposed. According to Brenner, it is statistically probable that due to the large number of people who travel, some will develop cancer as a result of the radiation, especially children and those who fly often. While the risk to a single individual may be small, the risk to the population as a whole could be appreciable. Brenner further indicated that the most likely type of cancer to develop as a result of this radiation is skin cancer.

At the University of California, San Francisco experts have also voiced concerns about the radiation in full body scanners. Of particular concern to researchers at UCSF was the fact that the safety of the scanners had not been sufficiently shown, especially amongst high risk groups. These groups include children and frequent flyers (the same groups mentioned by Brenner), as well as immunocompromised individuals and the elderly.

Not all radiology specialists, however, share the same concerns over the safety of backscatter full body scanners. Professor of Radiology Mahadevappa Mahesh of Johns Hopkins University School of Medicine explains that the radiation of a single medical x-ray is equivalent to around one to two thousand scans from backscatter machines. Dr. Mahesh does advocate for the continual maintenance and testing of the scanners, however, to ensure that the radiation dose remains unsubstantial.

The TSA has recently fallen into mucky water regarding the maintenance and retesting of radiation levels in the backscatter scanners. At the beginning of this year, the TSA had yet to report any data on the state of their scanners. On March 11, 2011, the TSA stated that it would be retesting all airport backscatter body scanners. This comes after some reports indicated that the levels of radiation might have been as high as ten times the previously believed amount. The agreement to release results came only after lawmakers pressured the TSA into providing reports for the scanners. The TSA also has a history of negligent monitoring of their x-ray machines. A CDC report from 2008, for example, indicated that the amount of radiation used for luggage scanners was more the levels permitted.

While the levels of radiation emitted by backscatter full body scanners is supposed to be tiny, there is nothing that says the machine cannot malfunction and emit more than the desired amount. Lawmakers and scientists, alike, are concerned about the unresponsiveness of the TSA to their call for reports, and their irresponsibility in ensuring the continuous safety of their machines. The TSA indicates that the reports that came out (that indicated higher levels of radiation than expected) reflected math mistakes. As of April 15 2011, however, the TSA has yet to publish any further records of inspections of their scanners.

The debate continues among doctors, physicists, and lawmakers as to the safety of backscatter full body scanners. Some doctors believe that any added radiation correlates with an added risk of cancer, and thus the chance is not worth taking. Others, however, maintain that levels are small compared to natural radiation exposure. Meanwhile, everybody is still waiting for the TSA reports about the state of their machines, and thus official response to allegations of higher than expected radiation levels. Until then, if traveling, there is always the full body pat-down option.

References for this editorial can be found at

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