

Self Referral CT Scans – Questions and Answers

Computed tomography has served physicians and patients for more than 25 years as a valuable diagnostic tool in medicine. Recently, some medical facilities in Ohio have begun performing CT screening exams on persons who refer themselves, even though they do not have any medical symptoms or a physician's referral. This self-referral use of whole body scanning is marketed as a preventive action that individuals can take to determine the possibility of having a disease before symptoms appear. The Ohio Department of Health has reviewed "self-referred" CT scans and has determined it is an unacceptable practice. This decision is based largely on recommendations from the U.S. Food and Drug Administration (FDA) and professional medical and health-oriented organizations. The Ohio Department of Health still advocates physician-referred CT scanning as an effective tool in diagnosing patients with appropriate symptoms.

The following questions and answers are assembled to help you understand this issue:

What is a CT scan?

CT or computed tomography is a type of X-ray system. All X-ray systems emit penetrating radiation that is absorbed differently by various parts of the human body. In conventional X-ray systems, a broad beam of X-rays is directed through an area of the body, and the transmitted radiation is recorded on special photographic film. With CT, a narrow beam of radiation is repeatedly scanned through the body as a person is moved through the CT device. The detected signals resulting from the transmitted radiation are combined to form many cross sectional images of the body. A special type of CT scan is the electron beam CT (EBCT) that functions in the same manner as an X-ray CT but does not require any moving parts. EBCT acquires the image faster than a standard CT scanner and provides a technique for detecting coronary artery calcium, which is useful in the evaluation of heart disease. For the same type of scan, the dose received by the patient is not significantly different with an electron beam CT than with a conventional CT scanner.

What are CT scanners used for?

Typically the CT scanner is used to assist the physician in making a diagnosis with patients exhibiting particular symptoms. Used in this way, the physician has an effective tool to assist him/her in making diagnostic and therapeutic decisions. An important point to remember is the physician uses CT scans in conjunction with all the other tools in coming to a diagnosis about an individual with a particular set of symptoms.

What does the U.S. Food and Drug Administration (FDA) say about whole body CT scanning?

The FDA has stated that: "At this time the FDA knows of no data demonstrating that whole body CT screening is effective in detecting any disease early enough for the disease to be managed, treated, or cured and advantageously spare a person with at least some of the detriment associated with serious illness or premature death." They have also said "any such presumed benefit of whole-body CT screening is currently uncertain, and such benefit may not be great enough to offset the potential harms that such screening could cause."

What do radiological-related health care organizations believe about whole body CT screening?

Organizations such as the American College of Radiology, the American College of Cardiology and the American Heart Association do not recommend self-referral whole body CT screening. The American College of Radiology has stated:

To date there is no evidence that total body CT screening is cost effective or is effective in prolonging life. In addition the ACR is concerned that this procedure will lead to the discovery of numerous findings that will not ultimately affect the patient's health, but will result in increased patient anxiety, unnecessary follow-up examinations and treatments and wasted expense.

What is the radiation dose associated with a CT scan?

The FDA paper on CT provides the following information on dose:

Radiation doses from CT procedures vary from patient to patient. A particular radiation dose will depend on the size of the body part examined, the type of procedure, and the type of CT equipment and its operation.

From a radiation dose perspective, self-referral CT screening provides a substantially higher dose than other typical X-ray screening procedures such as mammography or bone densitometry. The FDA has stated the amount of radiation received in CT procedures may be the equivalent of 100 to 500 chest X-rays.

The Conference on Radiation Control Program Directors (CRCPD) and the FDA have indicated the radiation doses involved with CT procedures are associated with a slightly increased risk of getting cancer.

Do screening CT scans detect unknown problems?

Yes and no. In an ongoing study that involved 1,520 current or recent smokers at the Mayo Clinic, researchers report CT lung scans identified an averaged of almost three nodules per person in 1,049 of the smokers. Nearly 99 percent of those nodules were found upon further evaluation to be benign while just over 1 percent was determined to be cancerous. Therefore, the CT lung scans in the study demonstrated a false positive rate of nearly 99 percent in terms of identifying previously unknown cancerous lung conditions.

The FDA states "In any case, it is unlikely that CT screening will benefit an individual lacking signs or symptoms of disease by detecting a serious disease early enough to treat it and alter the outcome significantly."

Does Ohio recommend self-referral CT scans?

No. If you believe you have a health problem that would benefit from a CT scan, the Ohio Department of Health recommends you see your family physician and have an evaluation. If your physician believes a CT scan or other diagnostic tests would be beneficial in identifying the health problem that is concerning you, your physician can provide a referral for you to have the appropriate diagnostic tests.

Where can I find additional information on CT screening?

Ohio Bureau of Radiation Protection - [phone: (614) 644-2727 or e-mail: bradiation@gw.odh.state.oh.us]

U.S. Food and Drug Administration (FDA)

FDA e-mail [<http://www.fda.gov/cdrh/ct/contact.html>]

FDA web site [<http://www.fda.gov/cdrh/ct/>]

FDA brochure [<http://www.fda.gov/cdrh/ct/ctscansbro.html>]

American College of Radiology (ACR)

[http://www.acr.org/departments/pub_rel/press_releases/total-bodyCT.html]

American Heart Association (AHA) /American College of Cardiology (ACC)

[<http://www.acc.org/clinical/consensus/electron/dirIndex.htm>]

American Association of Physicist in Medicine (AAPM)

[<http://www.aapm.org/announcements/CT.html>]

Health Physics Society (HPS)

[<http://hps.org/documents/CTPosStm.pdf>]

Johns Hopkins Medical Institution

[<http://www.hopkinsmedicine.org/press/2003/January/030115A.htm>]