pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

# CT Screening

A “CT” or “CAT” scan is the term used to describe an X-ray test known as “computed tomography” (or computed axial tomography). The CT scanner is a large doughnut-shaped machine that uses X-rays to produce cross-sectional images of the body. These two-dimensional images (slices) can be layered to construct 3D images of the body that cannot be seen on regular X-ray examinations. This is fundamentally different from conventional X-rays that produce images depicting a dimensional “flat” image of a body part. CT makes it possible to diagnose and pinpoint certain diseases earlier and more accurately than with other imaging tools; therefore, physicians are relying more and more on the use of CT. The downside is that the radiation dose from CT is substantially higher than the dose from most conventional X-ray procedures.

One of the uses for CT is medical screening. Screening is a common medical practice used to look for hidden disease in populations or individuals that may be at risk. Healing arts screening is a particular type of screening. It is defined in 25 Pa. Code Section 221.2 as “the testing of human beings using X-ray machines for the detection or evaluation of health indications when the tests are not specifically and individually ordered for the purpose of diagnosis or treatment by a licensed practitioner of the healing arts legally authorized to prescribe the X-ray tests.” The majority of X-ray procedures performed are ordered by a physician (typically by prescription) as part of the ongoing care and treatment of their patients. This is not healing arts screening.

CT Scanner

In order for CT scans to achieve excellence in the diagnosis and management of medical conditions, the results need to be interpreted by qualified medical personnel. This will also help to avoid unnecessary follow-up procedures and minimize patient impact, anxiety, and expense. Individuals who want to have a CT scan should contact their doctor to make sure it is needed and to make sure they get the proper medical follow-up to help them understand the results and consequences of these exams. There may be unavoidable false positive or false negative findings from a CT scan that have significant consequences for the patient. Through the healing arts screening rule, the regulations emphasize the need for active participation by a patient’s physician to promote informed consent. Exposure to radiation (e.g., X-ray) has associated risks; thus, as with any medical diagnostic X-ray examination, there should be a good, medically sound reason for the exposure. At this time, there are no state-approved, self-referred CT healing arts screening facilities operating in Pennsylvania.

All X-ray equipment, including CT scanners, are required to have a valid certificate of registration under Pennsylvania’s Radiation Protection Act and respective regulations administered by the Department of Environmental Protection (DEP). Within DEP, the Bureau of Radiation Protection inspects such X-ray equipment to ensure patient safety.

There continues to be significant controversy surrounding CT screening. Some states have little or no control over it while others, like Pennsylvania, take a serious look at all healing arts screening. Those who are considering CT screening should first seek the services of an independent physician and be aware of the risks versus benefits of CT screening. Individuals should not subject themselves to any medical procedure without informed consent.

The issue of self-referred CT screening of individuals without specific symptoms has been considered by DEP's Radiation Protection Advisory Committee. The committee is comprised of members representing environmental, medical, science, engineering, business or public interest groups, and the general public, all of whom are appointed by the DEP Secretary. The committee cited the following concerns regarding CT screening: the lack of generally accepted medical evidence that the X-ray exams improve medical care for the public or prolong life overall; the possibility of increased disease, and even death, from unnecessary follow-up medical examinations or surgeries; the potentially high radiation dose; increased patient anxiety from undergoing this procedure and follow-ups; and the increased out-of-pocket cost to the patient.

The Conference of Radiation Control Program Directors (CRCPD) discourages patients without symptoms from obtaining CT scans until scientific studies demonstrate that they are effective in reducing disease or mortality. The members agree that CT can be a useful diagnostic tool when a person has signs or symptoms of some particular disease. CT can also be extremely helpful in determining the extent of some diseases and monitoring the effects of treatment. However, no scientific studies have demonstrated that CT screening of individuals without symptoms provides a greater probability of benefit than harm.

CRCPD members agreed that they should actively discourage self-referral CT screening through the application of individual state authority and require that all CT scans be specifically ordered and authorized by a physician after a medical consultation. In addition, CRCPD supports the application of a quality assurance program for every CT machine to ensure that good imaging technique is used to help avoid unnecessary radiation exposure.

The commonwealth's physician general, in consultation with two Pennsylvania Boards of Medicine, has stated that while screening may be appropriate for certain services, such as mammography, it was believed that self-referral for screening examinations involving CT scans is not yet considered an appropriate standard of care to be made available without a physician's referral. The decision to order a screening CT scan should only be made by a physician and providing such a service without a physician's order may represent the unlicensed practice of medicine.

Recently, due to advances in technology, the use of Low-Dose Computed Tomography (LDCT) has proven to be beneficial in screening certain groups of individuals. For example, LDCT for lung cancer screening has been recommended by the United States Preventive Services Task Force for people who are current smokers (or have quit within the last 15 years) aged 55 to 79 years old who have a smoking history of 30 pack-years or greater. In 2015, the Centers for Medicare and Medicaid Services approved reimbursement for annual screening for lung cancer with LDCT for high-risk patients. DEP does not object to these types of screenings provided pertinent criteria recommended by reputable health organizations are met and a specific order (prescription) for the appropriate modality is written by a physician. Because a prescription is used, LDCT does not fall under the definition of healing arts screening.

For more information, visit www.dep.pa.gov.