HEALTH PHYSICS SOCIETY

WHOLE-BODY COMPUTERIZED TOMOGRAPHY SCREENING SHOULD NOT BE PERFORMED

POSITION STATEMENT OF THE HEALTH PHYSICS SOCIETY*

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The Health Physics Society (HPS) believes that no medical use of radiation should be employed unless there is a clear medical benefit. This view is in keeping with the International Commission on Radiological Protection, which states in Publication 73 that no medical practice with radiation should be adopted unless its introduction produces a positive medical effect. Also, the National Council on Radiation Protection and Measurements states that the goal of radiation protection is to limit the chance of radiation-induced disease in persons exposed to radiation and in their offspring to a degree that is reasonable in relation to the benefits from such exposures. The Health Physics Society finds no evidence of such benefits for the practice of whole-body CT (computerized tomography) screening and therefore believes the radiation dose to persons is not justified.

The Society is concerned that medical exams involving radiation known to be useful for persons at high risk of disease are being used on persons with low disease risk or no disease symptoms and without regard for the radiation risks imposed. Because of potential radiation risks, the HPS recommends that the practice of using whole-body CT screening for self-referred, healthy individuals with no disease symptoms be discontinued until scientific studies demonstrate its effectiveness. Medical examinations involving radiation should be used only when the radiation dose is justified.

Basis for the HPS Position

Whole-body CT screening involves ionizing radiation exposure to the chest, abdomen, and pelvis. The examination typically consists of three tests tailored to detect the presence of coronary artery calcification, lung cancer, and colon polyps or masses. Whole-body CT screening can also detect other abnormalities such as benign or malignant tumors in other organs, emphysema, enlarged lymph nodes, aneurysms, gallstones, and kidney stones.

The purpose of screening is to prevent or delay, by means of earlier detection, the development of advanced disease and its adverse effects. The use of medical screening examinations that involve exposure to ionizing radiation can be beneficial and justified for persons with a high risk of disease when a physician refers a

patient for the exam. The benefit of whole-body CT screening in self-referred, healthy persons with no disease symptoms or in low-risk individuals has not yet been demonstrated. The American College of Radiology (ACR), in a statement issued on 28 September 2002 states: "The ACR, at this time, does not believe there is sufficient evidence to justify recommending total body CT screening for patients with no symptoms or a family history suggesting disease." (http://www.acr.org)

There are several ongoing studies to determine the effectiveness of CT screening in groups at high risk for specific diseases. The use of electron beam or multi-detector CT units for the detection of coronary artery calcification in populations at risk for coronary artery disease has been studied and reported in the scientific literature. While these studies have shown that CT screening can detect and quantify coronary artery calcification, the use of this test to guide therapy or as a screening tool has not been validated and remains unclear. In a consensus document issued 4 July 2000, the American College of Cardiology and the American Heart Association states: "available data are insufficient to support recommending EBCT [electron beam computerized tomography] to asymptomatic[1] members of the general public or for routine clinical use." (http://www.acc.org)

Low-dose spiral CT screening of the lungs has been shown to detect early-stage lung cancer in high-risk individuals; however, there is not yet evidence to suggest that earlier detection leads to better patient outcomes. Studies are also underway to determine if CT is useful for screening populations at risk for colon cancer. Currently, there are no data or studies underway to support the use of whole-body CT to screen for cancers in persons with no symptoms or at low risk.

There are two issues of concern regarding whole-body CT screening. First, a positive examination does not alone confirm the presence of disease. In practice, patients with no symptoms generally have a low prevalence of disease. The scientific literature has reported that whole-body CT screening of this patient population will result in numerous findings suggesting disease when none is present. Such false positive findings require additional unnecessary diagnostic examinations and invasive procedures, resulting in increased anxiety, time, and costs. Second, there have been no scientific studies to show that whole-body CT screening improves medical care or significantly alters patient outcome.

Even if disease can be found at an earlier stage by CT screening, there is no scientific evidence that treatment, if available, can prolong or improve quality of life. These issues are the basis for the following Food and Drug Administration (FDA) statement: "At this time the FDA knows of no data demonstrating that whole-body CT screening is effective in detecting any particular disease early enough for the disease to be managed, treated, or cured and advantageously spare a person at least some of the detriment associated with serious illness or premature death." (http://www.fda.gov/cdrh/ct/)

[1] Asymptomatic: absence of symptoms

*The Health Physics Society is a nonprofit scientific professional organization whose mission is excellence in the science and practice of radiation safety. Since its formation in 1956, the Society has represented the largest radiation safety society in the world, with a membership that includes scientists, safety professionals, physicists, engineers, attorneys, and other professionals from academia, industry, medical institutions, state and federal government, the national laboratories, the military, and other organizations. Society activities include encouraging research in radiation science, developing standards, and disseminating radiation safety information. Society members are involved in understanding, evaluating, and controlling the potential risks from radiation relative to the benefits. Official position statements are prepared and adopted in accordance with standard policies and procedures of the Society. The Society may be contacted at 1313 Dolley Madison Blvd., Suite 402, McLean, VA 22101; phone: 703-790-1745; fax: 703-790-2672; email: HPS@BurkInc.com.