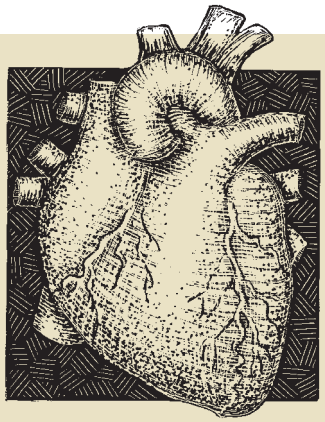
Body checking

By Peter K. Spiegel, M.D.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The brightly colored flyer in the Sunday paper proclaimed "A Body Scan Can Save Your Life! Heart disease and cancer are leading causes of death in America." A for-profit company was coming to town and offering ultrasound scans for a fee. A "full-body scan" could be arranged by calling an 800 number, which was "available seven days/week." The fine print mentioned that Medicare does not cover scans for preventive rather than diagnostic purposes—often a sign that such tests are not approved by the medical establishment. Nevertheless, entrepreneurs pitch full-body scans to the American public on TV and radio and in print.

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Fears: As a physician, particularly in my role as chair of radiology at an academic medical center, I was disturbed by the company's misleading claims. Such outfits prey on people's fears by suggesting that common conditions—like gallstones and cysts of the thyroid, gallbladder, or kidney—can lead to cancer. The implication is that if you have a cyst, cancer is present. This company also claimed that ultrasound can diagnose coronary artery abnormalities. In truth, ultrasound may detect heart enlargement and valve abnormalities, but it cannot reveal coronary disease.

The practice of recruiting people off the street to screen them for every imaginable disease is driven by financial incentives. Often such scans are little more than a "wallet biopsy." Some people may think, "Oh, but it can't hurt to check." Well, yes it can. For starters, the equipment and staff used by body-scan entrepreneurs aren't subject to the rigorous quality-control and credentialing processes that hospitals are. The lack of such standards greatly increases the chance of false positives. Even worse, real disease could be missed.

Symptoms: At DHMC, as well as at other accredited health-care institutions, clinicians determine for each patient whether imaging is appropriate and if so, what type is best. Imaging is often needed to diagnose disease or to plan treatment, such as when a patient has a lump or is experiencing pain. But imaging is usually not recommended for screening asymptomatic people. Radiologists estimate that the probability of finding significant disease with imaging is about 1% in people without symptoms versus 50% in those with symptoms.

Another type of full-body scan marketed to consumers is a full-body computed tomography (CT) "cancer screening" scan that produces 3D images of the human body. Not only is full-body CT screening not recognized by the American College of Radiology or any other medical organization, but it delivers significant ionizing radiation; one such scan is about the same as several hundred chest x-rays. It's estimated that one person out of every 1,000 scanned will die from cancer induced by the exam, according to a report from the National Research Council's Committee on the Biological Effects of Ionizing Radiation. Ultrasound is touted as a safe, radiation-free alternative but has not been proven effective in screening for early-stage cancer. And like other medical procedures, screening imaging carries the risk of both false negatives, which may cause patients to ignore real signs of disease, and false positives, which may lead to unnecessary diagnostic testing or surgery.

Even if there were no negative outcomes associated with screening, there are not enough resources to screen everyone for everything. In addition, common sense would dictate that we only screen asymptomatic people if they are likely to have the disease we're looking for; if our technology is likely to find that disease; and if we can intervene to cure the disease or prolong life. We need to educate patients so they can make informed choices and weigh the risks and expenses against possible benefits.

Risks: Two established cancer-screening initiatives are mammography for women over 50 and colonoscopy for people over 50. Many other screenings remain controversial, including the PSA (prostate specific antigen) test for prostate cancer in men. Researchers at Dartmouth and elsewhere assert that since prostate cancer is often benign or slow-growing, it's debatable whether treatment—with its risk of impotence and incontinence—is always warranted. Also still debated is mammography for women between 40 and 50.

Imaging to screen for vascular disease is sometimes appropriate. Ultrasound is the technology of choice to screen for abdominal aortic aneurysms, but only in high-risk patients—male smokers aged 65 to 75, according to the U.S. Preventive Services Task Force. And an ultrasound screening protocol is being developed for carotid artery disease—in which the major neck arteries are narrowed or blocked—and may one day be adopted for use with high-risk patients.

Can we absolutely determine who will benefit from screening? Certainly when a random exam detects a potentially fatal aneurysm or tumor at a curable stage, it's like winning the lottery for that patient. But the harms and benefits of random screenings are not yet clear. We need to conduct clinical trials to fully evaluate them, yet such studies are not easy, straightforward, or inexpensive.

Fortunately, other efforts are under way that may rein in the full-body scanners. Insurers like Medicare and Medicaid and Anthem Blue Cross and Blue Shield are developing reimbursement criteria for screenings, such as accreditation of scanning facilities. I hope such steps will not only foster quality but also make it more difficult for full-body-scan entrepreneurs to flourish or even survive. ■

"Grand Rounds" covers a topic of interest to the Dartmouth medical faculty. Peter Spiegel, a professor and chair of radiology, joined the Dartmouth faculty in 1968 and has been head of diagnostic radiology since 1973. He is a Dartmouth College '58 and a DMS '59.