

Wall Street Journal  
**Seeking a Better Breast Scan**  
New Technology  
May Boost Accuracy  
With Less Squeeze  
By **KATHRYN KRANHOLD**  
April 24, 2007; Page D4

Women take comfort: Some of the newest technology in breast-cancer screening seeks to get a better image of the breast with less squeeze.

For years, the gold standard for breast screening has been the mammogram. But while most doctors agree mammograms can save lives, one of the biggest problems for women is the discomfort. Mammograms compress the breast from top to bottom and from side to side between two clear plates. The compression, while uncomfortable and sometimes painful, is essential -- the tighter the compression the better and more reliable image it generates.

"The squeeze is one of the big reasons why women put off getting their mammograms," says Marisa Weiss, a Philadelphia breast oncologist and founder of the Web site [breastcancer.org](http://breastcancer.org)<sup>1</sup>. Tomosynthesis technology provides three-dimensional images.



University of Michigan

But a new technology called digital breast tomosynthesis appears to do a better job of finding breast cancer with less smush. During a DBT scan, the breast is positioned the same way as during a conventional mammogram but ideally uses only gentle pressure to keep the breast immobile. With DBT, an X-ray tube moves in an arc around the breast, taking several pictures at various angles in about five seconds. A DBT scan also appears to give doctors a far more accurate three-dimensional view of the breast than the two-dimensional image produced in a conventional mammogram, says **Daniel Kopans, MD, senior radiologist at Massachusetts General Hospital and a tomosynthesis developer.**

Today, an estimated 75% of all American women over 40 years old get regular mammograms, which many experts believe has led to earlier detection of the disease and better survival chances for women with breast cancer. But a burst of technological advances in breast screening in recent years has confused women about their options. DBT scans won't be available to most women for at least a few

years. For now regular film-based mammograms are the most common screening method, but many radiologists now offer sonograms and digital mammograms. And a recent study showed that women at high risk for breast cancer should consider magnetic-resonance imaging, or MRI, breast scans.

Early studies show that tomosynthesis is better at detecting cancer than mammograms, but large trials of DBT technology from the manufacturers, **General Electric Co.**, Fairfield, Conn., and **Hologic Inc.**, Bedford, Mass., are under way at Massachusetts General Hospital and other institutions. For comparison purposes, the women in the DBT studies are subjected to the same amount of compression as in conventional mammography, but that will likely change once more data are collected, says **Elizabeth Rafferty, MD head of breast imaging at Massachusetts General Hospital, who is conducting tomosynthesis trials.** The technology could receive Food and Drug Administration approval as early as this year and be available to women by 2008.

While DBT is promising, there are limitations. The machines are costly, and many radiology practices may not be able to invest in them right away. A DBT machine costs more than \$700,000, compared with about \$450,000 for a digital mammography machine, radiologists estimate. A conventional film-based mammography machine starts at around \$100,000.

Most women in the near future will still be advised to get regular mammograms. Although a debate remains about how often women should be screened, most doctors believe a base-line mammogram at the age of 40 is a good idea. Women at higher risk for breast cancer may be advised to start mammograms even sooner coupled with an ultrasound or an MRI.

The challenge with breast screening is that breast tissue is like a fingerprint, with each woman's breast presenting unique swirling patterns of fatty, fibrous and glandular material. Fatty tissue makes it easier to detect a mass because the hard texture stands out in the soft tissue, specifically on a mammogram. Glandular or dense breasts are apt to hide cancers in the lumpy tissue.

Many doctors are now shifting to newer digital mammography machines. Although the procedure itself is the same as a conventional mammogram, some radiologists believe the digital technology can make it easier to identify masses in younger women as well as women with dense breasts. With a digital mammogram, the electronic images can be manipulated, which means physicians can zero in on a particular spot in the image, and adjust the contrast around it to better define and determine if there is a worrisome mass.

Women with hard-to-read mammograms are sometimes referred for a breast ultrasound. Ultrasound tests also are used to determine whether a mass is solid or a fluid-filled cyst. A cyst typically will evaporate or can be aspirated and doesn't increase a woman's risk for cancer.

Manufacturers are also working on a next-generation ultrasound for breast-cancer imaging. A technology by U-Systems Inc., of San Jose, Calif., called automatic ultrasound is designed to scan a large area of the breast in one quick sweep. Currently, an ultrasound technician or radiologist moves a small transducer over a small targeted area. It's not clear yet whether U-Systems' larger flat transducer can effectively scan the entire breast. Doctors say that while the new advances in breast

screening have the potential to improve on the mammogram, women shouldn't put off the test because they are waiting for a better breast exam.

"There is no single technology that will give us all the answers," says Marc Liebeskind, a Manhattan radiologist. "They look for different elements of what cancers do."

Write to Kathryn Kranhold at [kathryn.kranhold@wsj.com](mailto:kathryn.kranhold@wsj.com)

<http://online.wsj.com/article/SB117737160651579721.html>

The information transmitted in this email is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material. Any review, retransmission, dissemination or other use of or taking of any action in reliance upon, this information by persons or entities other than the intended recipient is prohibited. If you received this email in error, please contact the sender and delete the material from any computer.

Kristen Landreth Dean  
Department of Radiology  
Massachusetts General Hospital  
175 Cambridge Street, Floor 2  
Boston, MA 02114  
617-724-4902 p  
617-724-1144 f  
Visit our web site [www.massgeneralimaging.org/marketing](http://www.massgeneralimaging.org/marketing)