

# Breast cancer screening

September 29 2011, By Alison L. Chetlen

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It can be difficult to sort through the many messages regarding breast cancer screening. Fancy billboards seen along the highways, recommendations made by your neighbor or the local newscaster, or mixed messages throughout the internet can cause confusion. What is the best way to screen for breast cancer?

The easy answer is that [mammography](#) is the only imaging method that has been proven to decrease mortality from breast cancer. Three decades of research show that mammography saves lives.

Although there have been some controversial studies on what age to begin [screening mammograms](#), the largest breast cancer screening trial ever performed involved a million women over 16 years and proved that screening mammography reduced breast cancer deaths in women ages 40 to 49 by 29 percent. A more recent Swedish study demonstrated a statistically significant reduction in breast cancer death rate by 30 percent of screening women ages 40 to 74 after these 130,000 women were followed for 29 years. Just recently, the American College of [Obstetrics and Gynecology](#) stated its position in support of screening women beginning at age 40, which now corresponds with the positions of the [American Cancer Society](#), American College of Radiology, Society of [Breast Imaging](#), American Society of [Breast Disease](#) and many other major medical associations with demonstrated expertise in breast cancer care. Hence, women should begin getting annual mammograms at age 40.

Recent research has examined the use of whole [breast ultrasound](#) and

MRI exams for breast cancer screening in addition to mammography. Breast ultrasound is used frequently to further evaluate a suspicious area seen on mammography, but it is not widely accepted as a screening tool. For women of sufficiently high risk for the development of breast cancer, the American Cancer Society recommends annual mammography plus MRI screening. Screening with mammography plus MRI has consistently outperformed mammography plus whole breast ultrasound for very high risk women.

Tomosynthesis is a 3-D screening method recently approved by the Food and Drug Administration (FDA) for use along with digital mammography, but not as a replacement. Multiple images of the breast are acquired at different angles during a sweep of the X-ray tube, allowing radiologists to see around overlapping structures.

Additionally, there are newer FDA-approved methods such as molecular breast imaging and positron emission tomography, which are physiologic studies to assist in detection or diagnosis of breast cancer.

Molecular breast imaging, also called breast-specific gamma imaging, is a nuclear medicine procedure where radiopharmaceutical agents are injected intravenously and concentrate in the breast. A high-resolution, breast-specific camera measures the amount of the activity that gets localized in the breast. A focal area with more radioactivity indicates higher metabolic activity and may correspond to a cancer. This method is sometimes use to evaluate patients when breast MRI is indicated but not possible.

Positron emission mammography (PEM) has been used to image larger tumors, but has generally been less successful at identifying the small tumors that are the subject of screening efforts. PEM involves the use of a pair of dedicated gamma radiation detectors placed above and below the breast and mild breast compression to detect coincident gamma rays

after administration of a positron-emitting radionuclide. Refinements in technology are still under way to improve the value of these methods. Most importantly, these newer technologies cannot replace mammography and do not ultimately replace biopsy for tissue diagnosis.

Finally, another method women may hear about is thermography. Thermography produces an image of the breast showing the pattern of temperatures at or near the skin surface. On June 2, 2011, the FDA issued a safety communication warning women and health care providers that thermography is not a safe alternative to mammography. The warning was issued in response to inappropriate claims by thermography facilities and websites promoting thermography as a replacement for mammography. The American Cancer Society, National Cancer Institute, and Society of Breast Imaging all have stated that no study has ever shown that thermography is an effective [screening tool](#) for finding breast cancer early and that thermography should not be used as a substitute for mammograms.

“Something old, something new” captures the essence of [breast cancer](#) screening. Although there are new and exciting methods being developed and refined, ‘good old’ mammography remains the standard of care for [breast cancer screening](#).

Provided by Pennsylvania State University

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