

Annual mammography with screening ultrasound may benefit women at increased risk of breast cancer

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The addition of a screening ultrasound or magnetic resonance imaging (MRI) to annual mammography in women with an increased risk of breast cancer and dense breast tissue resulted in a higher rate of detection of incident breast cancers, according to a study in the April 4 issue of *JAMA*.

"Annual ultrasound screening may detect small, node-negative breast cancers that are not seen on [mammography](#). [Magnetic resonance imaging](#) may reveal additional breast cancers missed by both mammography and ultrasound screening," according to background information in the article.

Wendie A. Berg, M.D., Ph.D., formerly of the American College of Radiology Imaging Network, Philadelphia, and colleagues conducted a study to determine the supplemental cancer detection yield of ultrasound and MRI in women at elevated risk for breast cancer. The study included 2,809 women (with increased [cancer risk](#) and dense breasts) at 21 sites who consented to 3 annual independent screens with mammography and ultrasound in randomized order. [Median age](#) at enrollment was 55 years. Nearly 54 percent of women had a [personal history](#) of breast cancer. After 3 rounds of both screenings, 612 of 703 women who chose to undergo an MRI had complete data.

A total of 2,662 women underwent 7,473 mammogram and ultrasound

screenings, 110 of whom had 111 breast cancer events. Fifty-nine cancers (53 percent) were detected by mammography, including 33 (30 percent) that were detected by mammography only; 32 (29 percent) by ultrasound only; and 9 (8 percent) by MRI only after both mammography and ultrasound screens failed to detect cancer. Eleven cancers (10 percent) were not detected by any imaging screen. A total of 16 of 612 women (2.6 percent) in the MRI substudy were diagnosed with [breast cancer](#).

Among 4,814 incidence screens in the second and third years combined, 75 women were diagnosed with cancer. The researchers found that supplemental ultrasound increased cancer detection with each annual screen beyond that of mammography, adding detection of 5.3 cancers per 1,000 women in the first year; 3.7 women per 1,000 per year in each of the second and third years; and averaging 4.3 per 1,000 for each of the 3 rounds of annual screening. The addition of MRI screening further increased cancer detection with a supplemental [cancer detection](#) yield of 14.7 per 1,000 women. The number of screens needed to detect 1 cancer was 127 for mammography; 234 for supplemental ultrasound, and 68 for supplemental MRI after negative mammography plus ultrasound screening results.

"Despite its higher sensitivity, the addition of screening MRI rather than ultrasound to mammography in broader populations of women at intermediate risk with dense breasts may not be appropriate, particularly when the current high false-positive rates, cost, and reduced tolerability of MRI are considered," the authors conclude.

More information: *JAMA*. 2012;307[13]:1394-1404.

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