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# What's the Best Way to Screen for Breast Cancer? Abbreviated MRI Beats 3-D Mammography, but Research Is Ongoing

By Julie Grisham, **Friday, February 28, 2020**



A new study has raised concerns that mammograms may not be the best way to screen for cancer among women who have dense breasts. Here, mammography technologist Daniela Costin helps a patient get a mammogram.

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## Summary

Mammograms are the current standard for screening women with an average risk of developing breast cancer. But experts at MSK are exploring more-advanced screening techniques that can detect breast cancer earlier.

It's well understood that women in certain age groups should undergo **regular screenings** to look for signs of **breast cancer**. But as technology has progressed, the methods used for screening have evolved.

Memorial Sloan Kettering radiologist **Christopher Comstock** published a study in the ***Journal of the American Medical Association (JAMA)*** on February 25 that shed light on this topic. The trial found that a new test called abbreviated MRI found far more cancers than 3-D **mammography** in women at average risk who have **dense breasts**. An abbreviated MRI reduces the length of a standard MRI scan from 45 to 10 minutes.

“About half of all women have dense breasts,” Dr. Comstock notes. Having dense breasts makes it more difficult for cancer to be detected because the dense tissue can obscure cancerous masses.



Christopher Comstock

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The most common method for screening women with dense breasts is 3-D mammography. This imaging test creates a three-dimensional view of the breast tissue. It is often combined with ultrasound. Also known as tomosynthesis, 3-D mammography is better than regular 2-D mammography at detecting masses in dense tissue. Abbreviated MRI, which uses fewer images than full MRI, is one of the new approaches being developed that could eventually replace current digital mammography techniques.

The study findings raise concerns that mammograms may not be the best way to screen for cancer among women who are of average risk and have dense breasts.

“Previous research done at MSK and elsewhere has shown that full-breast MRIs are the best imaging method for detecting cancer,

but these tests are expensive, time-consuming, and not widely available,” Dr. Comstock explains. “This study was designed to look at the ability of abbreviated MRI to find breast cancer.” The trial also showed women tolerate the MRI with very few side effects and that the centers could perform the test in less than 10 minutes.

## A Constantly Evolving Field

When doctors began screening for breast cancer in the 1960s and 1970s, they used standard X-rays. Eventually, they developed more-specialized techniques and equipment for doing mammograms. In the early 2000s, digital mammography, in which images are stored on computers, replaced films. In the past several years, 3-D mammography has replaced 2-D mammography as the standard screening method for women with dense breasts. Digital 2-D mammography is the standard for those who don't have dense breasts.

More than 1,400 women, ages 40 to 75, participated in the *JAMA* study. All of them were found to have dense breasts on a prior mammogram, did not have any signs or symptoms of breast cancer, and were of average risk.

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**MSK recommends that women who are at high risk of developing breast cancer due to family history or mutations in the BRCA genes undergo screening every year, whether they have dense breasts or not. [Learn more.](#)**

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The women in the trial were screened with both 3-D mammography and abbreviated breast MRI at 48 centers in the

United States and Germany.

In the first year of the study, 23 women were diagnosed with breast cancer. The abbreviated MRI detected 22 out of the 23 breast cancers, while the 3-D mammogram detected only nine out of the 23 cancers. Only one cancer was discovered with 3-D mammography that was not found with abbreviated MRI.

“The findings from this trial are significant,” Dr. Comstock notes. “The abbreviated MRI found about two and a half times more cancers than mammography alone, including ten that were invasive cancers.”

However, he notes that abbreviated MRI is still very new. Many breast-screening centers don’t have MRI machines — especially community hospitals and those in more rural areas. Experts at MSK are figuring out the best way to offer abbreviated MRI, which is not currently covered by insurance, to patients.

## The Promise of Other Screening Technologies

Dr. Comstock points to another vascular-based technology that is similar to MRI, called contrast-enhanced digital mammography (CEDM), which he believes shows similar promise for becoming the new standard screening method for women with dense breasts. MSK already offers this test at the [Evelyn H. Lauder Breast Center](#) in Manhattan as well as at all of its regional locations.

“CEDM is a significant improvement over standard 3-D mammography,” says MSK Senior Vice President [Larry Norton](#), a medical oncologist who specializes in treating breast cancer. “One

of the advantages of CEDM compared with MRI is that conventional mammography machines can be easily adapted to do CEDM, which means that more centers can offer it.”

“The abbreviated MRI found about two and a half times more cancers than mammography alone, including ten that were invasive cancers.”



**Christopher E. Comstock**  
radiologist

“In the near term, CEDM is likely to be much more available and accessible to patients than MRI, and at a lower cost,” Dr. Comstock adds. “It uses a technology that’s already familiar to doctors, which makes it easier to provide.”

Research done at MSK has already shown the benefits of CEDM at detecting cancer in women with dense breasts, compared with conventional 3-D mammography: A [study](#) published in *Radiology* in October 2019 found that the newer technique detected nearly twice as many cancers. These early results suggest that CEDM, which has been offered at MSK since 2012, is a promising way to screen for breast cancer.

## Looking Ahead

Dr. Comstock is currently planning a large multicenter trial to assess whether CEDM screening is more accurate in women with dense breasts compared with the combination of 3-D mammography and ultrasound. Called the Contrast-Enhanced Mammography Imaging Screening Trial (CMIST), it is expected to launch within the next few months. CMIST will be conducted at about a dozen centers around the world. “At MSK, we are exploring more-advanced techniques that detect cancers earlier to lead to better treatment,” says [Elizabeth Morris](#), Chief of the Breast Imaging Service at MSK, who is also involved in planning CMIST. “The landscape of breast radiology is ever changing, and here at MSK, we are leading much of this research.”

*This study was coordinated by the ECOG-ACRIN Cancer Research Group and supported by grants from the National Cancer Institute of the National Institutes of Health (CA189828, CA180790, CA180791, CA180795, CA180828, CA180847, CA180868, CA189819, CA180836, CA189860, and CA189956). For the conduct of this study, ECOG-ACRIN received funding from Bracco Diagnostics. Dr. Comstock has received personal fees from Bracco Diagnostics and Bayer.*

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