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## RSNA 2013: Breast Tomosynthesis Increases Cancer Detection and Reduces Recall Rates



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Digital breast tomosynthesis (DBT) led to reduced recall rates and increased cancer detection in a large breast cancer screening programme, according to a study presented today at the annual meeting of the Radiological Society of North America (RSNA).

While digital mammography is the gold standard for breast cancer screening, it may result in suspicious findings that turn out not to be cancer. These false-positive findings are associated with a higher recall rate, when women are called back for additional imaging or biopsy, with the anxiety that entails.

In other studies around the world, digital breast tomosynthesis has shown promise at reducing recall rates in all groups of patients, including younger women and women with dense breast tissue. Tomosynthesis is similar to mammography in that it relies on ionising radiation to generate images of the breast. However, unlike conventional mammography, tomosynthesis allows for three-dimensional (3-D) reconstruction of the breast tissue, which can then be viewed as sequential slices through the breast. Because the technology is relatively new, tomosynthesis is usually available as a supplemental screening tool.

This study was able to compare imaging results back to October 2011 for every patient screened for breast cancer at Hospital of the University of Pennsylvania (HUP) in Philadelphia.

For the study, Emily F. Conant, MD (pictured), chief of breast imaging at HUP and the study's lead author and colleagues compared imaging results from 15,633 women who underwent DBT at HUP beginning in 2011 to those of 10,753 patients imaged with digital mammography the prior year. Six radiologists trained in DBT interpretation reviewed the images.

The researchers found that, compared to digital mammography, the average recall rate using DBT decreased from 10.40 percent to 8.78 percent, and the cancer detection rate increased from 4.28 to 5.25 (per 1,000 patients). The overall positive predictive value—the proportion of positive screening mammograms from which cancer was diagnosed—increased from 4.1 percent to 6.0 percent with DBT.

"Our study showed that we reduced our callback rate and increased our cancer detection rate," Dr. Conant said. "The degree to which these rates were affected varied by radiologist. But importantly, the ratio of callback to cancer detection rate improved significantly for our radiologists."

"It's the most exciting improvement to mammography that I have seen in my career, even more important than the conversion from film-screen mammography to digital mammography," she added. "The coming years will be very exciting, as we see further improvements in this technology."

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