# 乳房トモシンセシスはがん検出率を上昇し再検査を減少させる（Abstract: SSK01-02）

デジタル乳房トモシンセシスを用いることによりがん検出目的の再検査率が有意に改善した

Ratio of callback to cancer detection rate improved significantly when using digital breast tomosynthesis

大規模乳がんスクリーニングプログラムにおいてデジタル乳房トモシンセシス（DBT）は再検査率を減少させがん検出率を上昇させた、と2013年Radiological Society of North America年次集会で発表された。デジタル乳房トモシンセシスは、若年女性およびデンスブレストの女性を含む全ての群の患者における再検査率軽減において有望であることが示された。トモシンセシスは電離放射線を用いて乳房の画像を作成する点においてマンモグラフィーと類似である。しかし、従来のマンモグラフィーとは異なり、トモシンセシスは乳房組織の3次元再構築をすることにより乳房全体を連続したスライスで観察することが可能である。スタディにおいて研究者らは、2011年以降にDBTを施行された女性15,633人の画像結果とその前年にデジタルマンモグラフィー検査を施行された患者10,753人の画像を比較した。デジタルマンモグラフィーと比較し、平均再検査率はDBTを用いることにより10.40%から8.78%まで低下し、がん検出率は4.28%から5.25%（患者1,000人当たり）に上昇した。全体の陽性的中率は4.1%からDBTを用いることにより6.0%に上昇した。トモシンセシスは進化しているプラットフォームであり、将来この技術はさらに向上するであろう、と研究者らは強調している。

## Full Text

Researchers have found that digital breast tomosynthesis (DBT) led to reduced recall rates and an increase in cancer detection in a large breast cancer screening program. The results of this study were presented at the 2013 annual meeting of the Radiological Society of North America (RSNA).

Digital mammography is the gold standard for breast cancer screening, but may yield suspicious findings that turn out not to be cancer. These false-positive findings are associated with a higher recall rate.

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 ionizing 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 DBT technology is relatively new, it is typically used only as a supplemental screening tool, but since October 2011, every patient screened for breast cancer at Hospital of the University of Pennsylvania (HUP) in Philadelphia has been screened using DBT, according to Emily F. Conant, M.D., chief of breast imaging at HUP and the study's lead author.

"We have used DBT on all of our breast screening patients," Dr. Conant said. "Every patient has had it—we have not selected patients because of their risk or breast density or if they were willing to pay extra. We did not charge extra and were able to provide all of our women with this new technology."

For the study, Dr. Conant 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 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."

Dr. Conant notes that tomosynthesis is an evolving platform, and researchers are already seeing a significant improvement in important screening outcomes.

"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 said. "The coming years will be very exciting, as we see further improvements in this technology."

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