

**BREAST CANCER
IMPROVING CANCER
DETECTION RATES**

Screening mammography has a key role in early breast cancer detection; however, it is associated with excessive false-positives and limited sensitivity. The group led by Sarah Friedewald has now shown that the combination of tomosynthesis with digital mammography reduces the recall rate (proportion of patients requiring additional imaging based on a screening examination result) and increases cancer detection.

Several single-centre studies have reported that the addition of tomosynthesis, which enables high-resolution 3D imaging using X-ray technology, to digital mammography improves breast cancer detection while decreasing recall. Friedewald and colleagues set out to investigate whether such benefits could be confirmed in a group of 13 different sites across the USA. The researchers performed an observational study of 454,850 examinations over two periods: before and after the implementation of tomosynthesis in breast cancer screening. Specifically, 281,187 examinations were performed in the first period (digital mammography alone), and 173,663 examinations were performed using tomosynthesis plus digital mammography.

“We found a 41% increase in invasive cancer detection, with a concomitant 15% decrease in recalls for additional imaging with the use of digital mammography plus tomosynthesis,” says Friedewald. The combination of the two techniques has also led to a 49% increase in positive predictive value (PPV) for recall (proportion of patients recalled after screening who were diagnosed with breast cancer), and a 21% increase in PPV for biopsy (proportion of patients undergoing biopsy who were diagnosed with breast cancer). There was no change in the detection of *in situ* cancers.

Friedewald highlights that “these results are consistent with other smaller published studies, both prospective and retrospective in Europe and in the USA.” She concludes, “we would like to determine if there are subpopulations of patients with certain characteristics—such as age and density of breasts—who might benefit more than others from the use of tomosynthesis.” These results are encouraging; however, further studies will need to assess their relationship with clinical outcomes.

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