

Comparison of Tomosynthesis Plus Digital Mammography and Digital Mammography Alone for Breast Cancer Screening

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Radiology 130307; Published online July 30, 2013, doi:10.1148/radiol.13130307

OBJECTIVE

To compare screening recall rates and cancer detection rates in two groups of women: those who received conventional digital mammography alone and those who received tomosynthesis in addition to mammography.

MATERIALS AND METHODS

In a retrospective examination of their screening program, recall rates, and cancer detection rates were computed and compared between screening mammography studies without ($n = 13,158$) and with ($n = 6,100$) the use of tomosynthesis. Analyses were performed to account for screening method, breast density, patient age, and cancer risk.

RESULTS

The introduction of tomosynthesis systems in the clinical practice resulted in the following changes in performance measures.

- A significant ~30% drop in recall rates – from 12% to 8.4% ($p < 0.01$)
- A non-significant ~9.5% increase in cancer detection rates - from 5.2 to 5.7 per 1,000 screenings ($p = 0.70$)

CONCLUSION

The study results demonstrated a significant reduction in recall rates (~30%, the greatest reductions seen for women younger than 50 years old and in women with dense breasts) along with an increase in the cancer detection rate (9.5% overall) after the introduction of tomosynthesis in the clinical practice.