

Cost-Effectiveness of Digital Breast Tomosynthesis

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Presented at RSNA 2012, LL-BRS-WE5C Breast Imaging Afternoon CME Posters

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OBJECTIVE

To determine the cost effectiveness of mammographic screening using combined Digital Breast Tomosynthesis (DBT) and Full-Field Digital Mammography (FFDM) vs. FFDM alone based on direct costs resulting from differences in the recall rate.

MATERIALS AND METHODS

7 radiologists reviewed the exams for combined DBT and standard FFDM screening studies from one institution over a 5 month period. The interpreted results were used to calculate the screening recall rates. Recall rates and number of diagnostic studies (unilateral mammograms, bilateral mammograms, and ultrasound studies) resulting directly from the recall were calculated. Regional Medicare reimbursements were used to calculate the direct costs associated with these studies. They did not include downstream direct costs, indirect costs, and intangible costs. Calculated cancer detection rates for both groups were used to determine with screening effectiveness.

FINDINGS

Of the 5780 patients who underwent screening mammogram:

- Combined DBT was performed in 1,602 patients
 - Overall recall rate was 7.0%
- FFDM alone was performed in 4,178 patients
 - Overall recall rate was 10.9%

Decrease in recall rate resulted in decrease in the number of immediate diagnostic studies which in turn resulted in a direct savings of \$10,185 per 1,000 patients screened. Combined FFDM and DBT vs FFDM alone

- Unilateral mammogram - 5.8% vs. 9.6% ($p = 0.0007$)
- Bilateral mammogram - 0.1% vs. 1.0% ($p < 0.0001$)
- Ultrasound - 5.5% vs. 7.7% ($p = 0.0052$)

Cancer detection rate for the two modalities were:

- 5.6 per 1,000 for combined DBT
- 3.4 per 1,000 for FFDM alone

CONCLUSION

Decreased callback rates from combined DBT and FFDM compared to FFDM alone results in a direct costs savings of \$10,185 per 1,000 women screened. Given that there also appears to be a trend for improved cancer detection rate, combined DBT appears to be preferable to FFDM alone for screening mammography.

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