

Implementation of Digital Breast Tomosynthesis: Comparison of Call-back and Cancer Detection Rates in a Clinical Screening Practice

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OBJECTIVE

To compare the screening call-back rate (CBR) and cancer detection rate (CDR) of digital breast tomosynthesis (DBT) in a prospective clinical practice to the CBR and CDR from the same practice one year prior when conventional full-field digital mammography (FFDM) was the standard of care

MATERIALS AND METHODS

In the practice, for all screening mammography patients, a combo mode of DBT was implemented as the standard of care. A month to month comparison of the DBT CBRs and CDRs were done with the FFDM CBR and CDR from the same time period from the prior year. The FFDM and DBT CBRs and CDRs were compared across the entire group as well as by individual readers (the readers remained the same over the study period).

FINDINGS

- In the first five months 5923 screening DBT exams have been performed.
- In the year prior during the same time period, 5517 screening FFDM exams were performed.
- The overall DBT CBR was lower at 9.6% versus the prior FFDM CBR of 10.5% ($p=0.11$).
- The impact of DBT on individual reader CBR varied depending on the baseline CBR of each reader, with the largest reduction in the reader with the highest baseline CBR (from 16.7% to 10.3%, $p<0.001$).
- The CDR increased with DBT from 4.17 cancers/1000 to 5.23/1000 ($p=0.41$). The Odds Ratio of cancer detection with FFDM versus DBT was 0.8 ($p=0.24$).

CONCLUSION

The first 5 months of clinical implementation of DBT in our breast cancer screening practice are associated with a small reduction in the overall call-back rate and a small increase in the cancer detection rate. The study concludes that DBT may offer improvements in sensitivity and specificity however; larger prospective studies are warranted to improve power and generalizability of the possible benefits.

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