A reader study comparing prospective tomosynthesis interpretations with retrospective readings of the corresponding FFDM examinations

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Objective

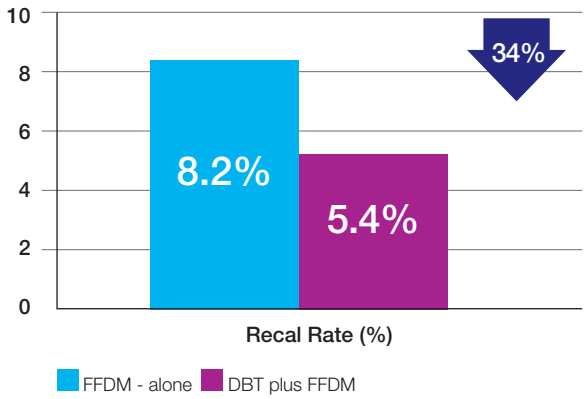
To compare the clinical performance of prospective readings of digital breast tomosynthesis (DBT) combined with traditional full-field digital mammography (FFDM) to the retrospective readings of the corresponding examinations using FFDM alone.

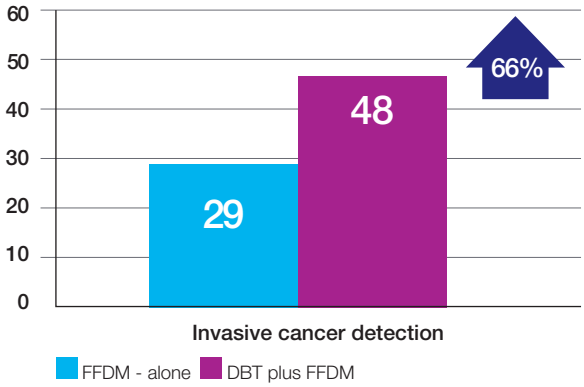
Materials and Methods

The study included 10,878 screening exams conducted between May 2011 and January 2012 with both tomosynthesis and FFDM. The recall and cancer detection rates of seven radiologists who performed retrospective readings of FFDM exams were analyzed, and compared with the recall and detection rates of 10 radiologists who originally interpreted the DBT plus FFDM exams. The seven readers of FFDM-alone were blinded to the BI-RADS category given during the clinical interpretations and the outcome as determined by follow-up. All of the radiologists who participated in the study were experienced in breast imaging, with an average of 12 years of mammography interpretation experience (range, 2-32 years).

Results

Of the 10,878 DBT plus FFDM cases interpreted, 588 (5.4%) were recalled, compared with 888 (8.2%) of the retrospective FFDM-only cases (representing a 34% decrease). Overall cancer detection rates were 5.4 per 1,000 for the DBT plus FFDM interpretations and 3.5 per 1,000 for the FFDM-only interpretations. Also, the DBT plus FFDM combination found more invasive cancers than FFDM-alone, at 48 versus 29 (a 66% absolute increase).





Conclusion

The authors concluded that for screening asymptomatic women, the addition of DBT to FFDM resulted in significant improvements in both performance measures, namely a reduction of recall rate with a simultaneous increase in cancer detection rate, particularly invasive cancers.

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