

Integration of 3D digital mammography with tomosynthesis for population breast-cancer screening (STORM): a prospective comparison study.

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OBJECTIVE

To evaluate the effect of the addition of tomosynthesis to conventional 2D mammography in population breast-cancer screening.

MATERIALS AND METHODS

STORM is a prospective screening study that compares screening in two phases: 2D only versus integrated 2D and 3D mammography, thus yielding paired results. The study included asymptomatic women of age 48 years or older from population-based screening services in Trento and Verona (Italy), from August 2011 to June 2012. The exams were double read and interpreted sequentially. A positive screen at either reading phase was recalled.

RESULTS

Based on 7294 screenings:

	Number of Cancers	Cancer Detection Rate	False Positive	False Positive Rate, %
2D mammography	39	5.3 / 1000 screens	322	4.4%
2D plus 3D mammography	59	8.1/ 1000 screens	254	3.5%

Cancer detection increased 51% across all ages and breast densities for integrated 2D and 3D mammography compared to 2D mammography. The authors estimated that false positive recalls could have been reduced by 17% without decreasing the cancer detection rates.

CONCLUSION

Integrated 2D and 3D mammography improves breast-cancer detection and has the potential to reduce false positive recalls.

