

Malmö Breast Tomosynthesis Screening Trial

High diagnostic accuracy with
50° wide-angle tomosynthesis

Objective

The main aim of this prospective population-based screening trial was to investigate the performance of one-view digital breast tomosynthesis (DBT) using Siemens Healthineers' 50° wide-angle technology compared to standard two-view digital mammography (DM).



one-view DBT

vs.



two-view DM

Results

The researchers from the Skåne University Hospital in Malmö (Sweden) had a very large study cohort of 14,848 women and were able to achieve an increase in the cancer detection rate of 34% with one-view DBT only. At the same time, as a result of the wide-angle, they could simultaneously lower the breast compression force by 40% and reduce the radiation dose by 15%. As such, it is the only prospective screening trial that has proven higher diagnostic accuracy with DBT at a lower radiation dose compared to the current screening standard – a win-win situation for radiologists and the healthy female screening population. The authors conclude that, if supported by cost-effectiveness studies, one-view DBT warrants consideration as the preferred breast cancer screening method in the future.

Summary of the results in the 14,848 women participating in the MBTST

	One-view DBT	Two-view DM	P-value
Recalled women (n)	535	370	
Recall rate (%)	3.6	2.5	p < 0.0001
Detected cancers (n)	131	97	
Invasive (n)	114	80	
In situ (n)	17	17	
Cancer detection rate	8.7 / 1000	6.5 / 1000	p < 0.0001
Sensitivity (%)	81	60	
Specificity (%)	97	98	



34% higher cancer detection rate



43% more invasive cancers detected



40% reduction in compression force



15% reduction in radiation dose

The MBTST in perspective

After more than eight years of intensive research, the final results of the Malmö Breast Tomosynthesis Screening Trial (MBTST) have been published in the world-leading clinical oncology periodical *The Lancet Oncology*. The MBTST has an exceptional scientific quality and interesting aspects on several points. First, it is a prospective screening trial with blinded double reading and scoring. As such, it delivers a higher evidence level than the more wide-spread retrospective studies and is one of the most demanding tests for assessing safety and efficacy of a new method. Secondly, the trial had a follow-up of at least two years. This means that every single woman from the 14,848 trial participants has been monitored for at least two years after the screening test had been performed, to allow for the identification of interval cancers. Then, contrary to all other clinical breast screening trials, it is the only trial focusing on less extensive imaging and reading protocols to gain the same or even better results with one view digital breast tomosynthesis (DBT) than two view DBT + DM (acquired or synthetic). The MBTST used one-view DBT only (not two-view) and without synthetic 2D or acquired DM images, offering potential benefits in terms of reduced reading times and costs.

Conclusions

The authors conclude that, if supported by cost-effectiveness studies, one-view DBT warrants consideration as the preferred breast cancer screening method in the future. In view of the similar results compared to other breast cancer screening trials, the results achieved with one-view DBT only are proof of the outstanding image quality of Siemens Healthineers' 50° wide-angle breast tomosynthesis. The reduced breast compression does not compromise image quality substantially, as shown by the increased cancer detection rate found in DBT, and might increase screening attendance rates in the long run. Finally, by using one-view only, the radiation dose for the patient could be reduced significantly.

About the journal¹ and study

The *Lancet Oncology* is the world-leading clinical oncology periodical publishing high-quality, peer-reviewed research (especially reports from clinical trials), reviews, comment and opinion, weekly news, and Commissions (typically in partnership with societies, governments, NGOs, and academic centres). It has an Impact Factor of 36.418[®], ranks third out of 222 oncology journals worldwide, and is the leading clinical oncology research journal (2017 Journal Citation Reports[®], Clarivate Analytics 2018). Articles published in *The Lancet Oncology* regularly receive coverage in the mainstream print, online, and broadcast media.

The full study can be accessed here:

[https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045\(18\)30521-7/](https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(18)30521-7/)

Zackrisson S, Lång K, Rosso A, Johnson K, Dustler M, Förnvik D et al. One-view breast tomosynthesis versus two-view mammography in the Malmö Breast Tomosynthesis Screening Trial (MBTST): a prospective, population-based, diagnostic accuracy study.

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¹ <https://www.thelancet.com/lanonc/about>.

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