

SUMMARY

A Case-Control Study to Add Volumetric or Clinical Mammographic Density into the Tyrer-Cuzick Breast Cancer Risk Model

[Brentnall AR, Cohn WF, Knaus WA, Yaffe MJ, Cuzick J, Harvey JA. J Breast Imaging. 2019 Jun;1\(2\):99-106. doi: 10.1093/jbi/wbz006. Epub 2019 May 11.](#)

Volumetric breast cancer risk, volumetric breast density, early cancer detection

Why it matters

Key takeaways

This is the first study validating that the addition of Volpara Scorecard™ volumetric percent density measures (VBD%) to classical risk factors in the Tyrer-Cuzick (TC) risk model improves risk stratification of patients, highlighting Volpara's potential use in personalized breast screening and breast cancer prevention strategies. Only Volpara Scorecard has integrated a volumetric density score into the TC risk model.

Study location

United States, single institution.

Study participants

474 invasive breast cancer cases & 2243 control participants, aged 40-79 years.

Study design

Case-control study using data from 2003-2013.

Methods

- Volpara used to determine percent volumetric breast density, and absolute fibroglandular and absolute fat volumes
- Breast density was also categorized using BI-RADS® 4th edition density categories
- Metrics were incorporated into the TC risk model to assess the impact of including volumetric or visual breast density on a patient's 10-year risk estimate

Study results

- 4.8% of patients were at high 10-year breast cancer risk according to the TC model without density
- 7.1% and 6.8% of patients were high risk according to the TC model incorporating BI-RADS density and Volpara VBD%, respectively
- Adding Volpara VBD% to the model improved risk stratification at both the higher and lower ends of the risk spectrum

Conclusions

- Using VBD% from Volpara Scorecard in the TC risk model, more women were identified as high-risk than through screening alone, making them eligible for additional screening
- Slightly fewer women were identified as high-risk incorporating VBD% into the TC risk model, versus BI-RADS