

**SUMMARY** 

# Reducing False-Positive Screening MRI Rate in Women with Extremely Dense Breasts Using Prediction Models Based on Data from the **DENSE Trial**

den Dekker BM, Bakker MF, de Lange SV, Veldhuis WB, van Diest PJ, Duvivier KM, Lobbes MBI, Loo CE, Mann RM, Monninkhof EM, Veltman J, Pijnappel RM, van Gils CH; DENSE Trial Study Group. Radiology. 2021 Aug 17:210325. doi: 10.1148/radiol.2021210325. Epub ahead of print.

Volumetric breast density, supplemental breast cancer screening, early cancer detection

### Why it matters

### Key takeaways

This study describes prediction models, based on clinical characteristics and MRI findings, that could be useful in reducing unnecessary diagnostic workup and/or biopsies in women with extremeley dense breasts undergoing supplemental screening with MRI. The full model could have prevented 45.1% of false positives and 21.3% of benign biopsies without missing any cancers.



### (o) Study location

Netherlands, multicenter.



## Study participants

454 women with extremely dense breasts and positive findings on supplemental MRI, after a negative mammogram.



### Study design

Prospectively collected positive MRI cases from within the DENSE trial (randomized controlled trial), 2011-2015.

### **Methods**

- Women aged 50-75 years with extremely dense breasts (determined by Volpara TruDensity™) and a negative mammogram were randomized to either supplemental MRI or mammography screening alone.
- All women with positive MRI findings (n=454), from first round supplemental screening were identified.
- Two prediction models were developed to distinguish between true positives and false positives on MRI, based on clinical characteristics and MRI findings in the 454 women.

### Study results

- The first prediction model included all collected MRI findings and clinical characteristics and could have prevented 45.5% of false positive recalls and 21.3% of benign biopsies without missing any cancers.
- The second model, incorporating only MRI results and patient age, could have prevented 35.5% of false positives and 13% of benign biopsies.

#### **Conclusions**

These prediction models demonstrate promise for reducing false-positive and benign biopsy rates from first round supplemental MRI screening, making implementation of supplemental MRI for dense breasts more clinically feasible.