Mammography Screening Outcomes for Women Screened by Standard Versus High Resolution Digital Breast Tomosynthesis

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Study Goal

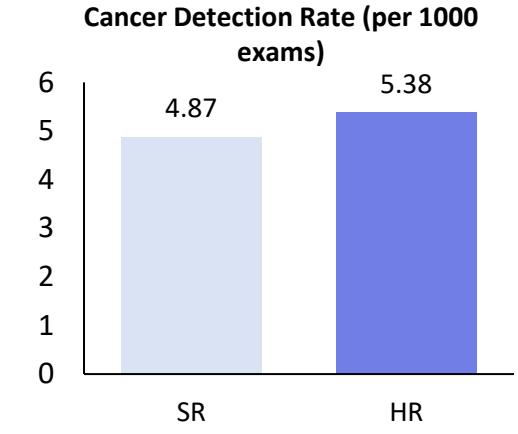
- To compare breast cancer screening outcomes between high resolution (HR; 70-micron) and standard resolution (SR; 100-micron) digital breast tomosynthesis (DBT) in real-world practice

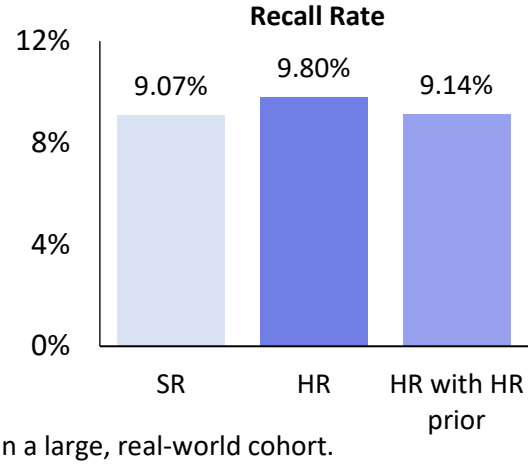
Study Design & Population

- Retrospective, observational cohort study of women screened for breast cancer at a large US health system (Sanford Health) between 2013 and 2023
- 184,006 screening mammograms were included (95,633 SR, 88,373 HR) from 37,673 women aged 40-79
- All exams performed on Hologic DBT systems; HR exams conducted with Hologic Clarity HD® and Intelligent 2D™ imaging

Key Outcome Measures

- Cancer detection rate (CDR), recall rate (RR), and positive predictive value of recall (PPV1)
- Logistic regression models were used to calculate odds ratios (ORs) and 95% confidence intervals (CIs), adjusting for potential confounders (age, race, breast density, short-term risk status, past screening resolution, and facility)
- Additional analyses assessed the impact of having prior mammograms on outcome measures





Results

- **CDR**: The CDR was 5.38/1000 (HR) and 4.87/1000 (SR). The increase in odds of cancer detection with HR was statistically significant after adjusting for potential confounders (adjusted OR = 1.370; 95% CI: 1.117, 1.681). The increase in CDR was even greater among exams with a known prior.
- **RR**: The RR was 9.80% (HR) and 9.07% (SR). HR DBT was associated with an increased recall rate (adjusted OR = 1.392; 95% CI: 1.327, 1.460), though this diminished in subsequent HR screening rounds (RR: 9.14% for HR exam with HR prior).
- **PPV1**: PPV1 was similar for HR and SR DBT (5.57% vs. 5.45%; adjusted OR = 1.054; 95% CI: 0.856, 1.297).

Conclusion

- HR DBT was associated with an increase in CDR compared to SR DBT in a large, real-world cohort.
- HR DBT showed an initial increase in recall rate, which diminished in subsequent HR DBT screening rounds.
- This retrospective study was conducted at a single health system with a relatively homogeneous population (98.3% White), which may impact the generalizability of the results to other racial groups.