HOLOGIC

MEDICAL EDUCATION

Impact of tomosynthesis on the evolution of the cancer detection rate in the French National Breast Cancer Screening Program

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Study Goal

- Evaluate the cancer detection rate based on digital technologies used in radiology centers in French National Breast Cancer Screening Program (FNBCSP)

Study Population

- Retrospective analysis of exams conducted between 2010-2019
- FNBCSP parameters:
  - Women aged 50-74 years with medium risk of breast cancer (no personal or family history, no genetic disposition and no symptoms of breast cancer)
  - Screening conducted every 2 years

Key Outcome Measures

Cancer detection rates (CDR) in first reads, CDR in second reads, and CDR by mammography technology

Key Findings

- 1,380,006 digital mammograms assessed
  - 26% mammograms with tomosynthesis (n=358,749)
  - 74% mammograms without tomosynthesis (n=1,021,257)
- 11,358 cancers detected over the study period (CDR = 8.2‰)
  - Reader-1 detected 10,744 cancers (CDR = 7.8‰)
  - Reader-2 detected 614 cancers (CDR = 0.5‰)
- Cancer detection rate was higher with tomosynthesis than without (9.3‰ vs 7.9‰, p<0.001)
- While the trial was not designed as a head-to-head comparison between individual vendors, among mammograms using tomosynthesis, there was a significant difference in the rate of detection of cancers by radiologists depending on the brand of tomosynthesis used (p=0.007)

Cancer Detection Rate Mammogram with tomosynthesis (p=0.007)

Vendor	Number of exams	CDR (per 1000)
Fujifilm	49,655	8.1
GE	12,294	8.3
Hologic	284,523	9.6
Siemens	1,503	8.6

Cancer Detection Rate Mammogram without tomosynthesis

Vendor	Number of exams	CDR (per 1000)
Fujifilm	219,528	7.4
GE	182,572	8.0
Hologic	187,046	8.8
Siemens	70,603	8.0

Note: CDR rates are higher in this study than typically seen in the US due to the 2-year screening interval used by the FNBCSP compared to the 1-year US interval. Data shown in the tables only includes vendors having US FDA approval for DBT. This does not take into account study size or cancer visual representation.

Conclusion

Tomosynthesis technologies increased the cancer detection rate compared to mammograms without tomosynthesis, with an observed difference in the cancer detection rate according to the brand of mammogram with tomosynthesis.