

# Effect of age on breast cancer screening using tomosynthesis in combination with digital mammography

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## Objective

Evaluate the effect by age of adding tomosynthesis to full field digital mammography for breast cancer screening

## Introduction

The previously published multicenter analysis (*Breast cancer screening using tomosynthesis in combination with digital mammography – JAMA 2014*) demonstrated that the addition of tomosynthesis to digital mammography increases detection of invasive cancers while concurrently lowering recall rates from screening in the general population

## Methods

- Multi-center (13 institutions) retrospective analysis of adding tomosynthesis to digital mammography (n=452,320)
- All exams performed on Hologic Selenia® Dimensions® systems
- Patient populations evaluated in age groups: 40-49, 50-59, 60-69, 70+ years

## Results

Addition of Tomo to DM significantly reduced the recall rate for ALL age groups

- Largest reduction in recall rate in age 40-49 from 137 to 115 per 1000 patients (p<0.001)
- **Relative reduction in recall rates for age 40-49 was 16%**

Age	DM Recall Rate (per 1000 pts)	DM + Tomo Recall rate (per 1000 pts)	p-value
40-49	137	115	<0.001
50-59	102	89	<0.001
60-69	89	77	<0.001
70+	78	70	<0.001

- The PPV for all recalled patients also increased significantly.

Addition of Tomo to DM significantly increased the cancer detection in women 40-69 yrs.

- Increase in invasive cancer detection in age 40-49 was from 1.6 to 2.7 per 1000 patients (p<0.001)
- **Relative increase for invasive cancer detection for age 40-49 was 69%.**

Age	DM Invasive Cancer Detection (per 1000 pts)	DM + Tomo Invasive Cancer Detection (per 1000 pts)	P-value
40-49	1.6	2.7	<0.001
50-59	2.4	3.7	<0.001
60-69	4.1	5.8	<0.001
70+	5.2	6.4	= 0.082

- The rate of biopsies per 1000 women screened was significantly increased with the addition of Tomosynthesis for women 50-70+.
- The PPV for biopsy was significantly increased for women in their 40's and 50's.

## Conclusion

With the addition of tomosynthesis to digital mammography, detection rates increased for invasive cancer in the age group of 40-69. There was a decrease in recall rates for all age groups and the largest performance gain was seen in women age 40-49. The combination of these 2 factors strongly supports the addition of tomosynthesis as the standard of care for breast cancer screening for women beginning at the age of 40.

Summary presented by Hologic Medical Education

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