

Supplementary Online Content

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eTable 1. Demographics of Patients Screened With Digital Mammography (DM) (Year 0) and Digital Breast Tomosynthesis (DBT) (Years 1-3)

eTable 2. Population Level Analysis, Comparing Screening Outcomes of Each Digital Breast Tomosynthesis (DBT) Year

eTable 3. Recall and Cancer Rates, Computed for the Last Screening

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Demographics of Patients Screened With Digital Mammography (DM) (Year 0) and Digital Breast Tomosynthesis (DBT) (Years 1-3).

| Characteristic | Screening Year DM0 n = 10728 | Screening Year DBT1 n = 11007 | Screening Year DBT2 n = 11157 | Screening Year DBT3 n = 11576 | <i>P Value*</i> |
|----------------------------|---------------------------------|----------------------------------|----------------------------------|----------------------------------|-----------------|
| Age, mean (SD) | 56.9 (11.0) | 56.7 (11.0) | 56.9 (11.0) | 56.7 (10.8) | .15 |
| Age categories, n (%) | | | | | |
| <40 years | 254 (2.4) | 258 (2.3) | 274 (2.5) | 266 (2.3) | |
| 40-49 years | 2925 (27.3) | 3133 (28.5) | 3025 (27.1) | 3203 (27.7) | |
| 50-59 years | 3563 (33.2) | 3566 (32.4) | 3585 (32.1) | 3761 (32.5) | .06 |
| 60-69 years | 2538 (23.7) | 2636 (24.0) | 2801 (25.1) | 2905 (25.1) | |
| ≥70 years | 1448 (13.5) | 1414 (12.8) | 1472 (13.2) | 1441 (12.5) | |
| Race, n (%) | | | | | |
| White | 4360 (40.6) | 4442 (40.4) | 4525 (40.6) | 4819 (41.6) | |
| Black | 5473 (51.0) | 5563 (50.5) | 5577 (50.0) | 5616 (48.5) | |
| Hispanic | 92 (0.9) | 114 (1.0) | 103 (0.9) | 117 (1.0) | < .0001 |
| Asian | 357 (3.3) | 338 (3.1) | 345 (3.1) | 379 (3.3) | |
| Other/unknown | 446 (4.2) | 550 (5.0) | 607 (5.4) | 645 (5.6) | |
| Breast density, n (%) | | | | | |
| 1 Almost entirely fatty | 1149 (10.7) | 1281 (11.6) | 1442 (12.9) | 1460 (12.6) | |
| 2 Scattered fibroglandular | 6090 (56.8) | 6115 (55.6) | 6167 (55.3) | 6515 (56.3) | < .0001 |
| 3 Heterogeneously dense | 3287 (30.6) | 3392 (30.8) | 3301 (29.6) | 3355 (29.0) | |
| 4 Extremely dense | 202 (1.9) | 219 (2.0) | 233 (2.1) | 233 (2.0) | |
| Missing | 0 (0.0) | 0 (0.0) | 14 (0.0) | 13 (0.0) | |
| Prior mammogram, n (%) | 9524 (88.8) | 9645 (87.6) | 9629 (86.3) | 9799 (84.7) | <.0001 |

*ANOVA was used for continuous variables, and the chi-squared test for categorical variables. All tests were two-sided.

eTable 2. Population Level Analysis, Comparing Screening Outcomes of Each Digital Breast Tomosynthesis (DBT) Year

Comparisons with baseline digital mammography (DM) year, as well as across the three DBT years, overall and by age and breast density

| Characteristic | DM 0 | DBT 1 | <i>P</i> Value | DBT 2 | <i>P</i> Value | DBT 3 | <i>P</i> Value | <i>P</i> Value (DBT) |
|----------------------------|---------|----------|-------------------|----------|-------------------|----------|-------------------|-------------------------|
| Recall, n/1000 | 104 | 88 | <.0001 | 90 | .0005 | 92 | .0025 | .549 |
| Biopsy, n/1000 | 18 | 20 | .167 | 19 | .606 | 19 | .597 | .600 |
| Cancer, n/1000 | 4.6 | 5.5 | .370 | 5.8 | .196 | 6.1 | .110 | .796 |
| PPV ₁ , % | 4.4 | 6.2 | .063 | 6.5 | .034 | 6.7 | .020 | .915 |
| PPV ₂ , % | 23.9 | 24.8 | .827 | 29.3 | .21 | 30.1 | .146 | .382 |
| PPV ₃ , % | 25.8 | 26.9 | .798 | 31.3 | .229 | 32.9 | .119 | .371 |
| | | | | | | | | |
| Invasive cancer, n/1000 | 3.2 | 3.8 | .420 | 4.1 | .243 | 4.1 | .269 | .929 |
| In-situ cancer, n/1000 | 1.4 | 1.5 | .779 | 1.3 | .914 | 1.8 | .440 | .668 |
| | | | | | | | | |
| Interval cancer, n/1000 | 0.7 | 0.5 | .603 | NA | NA | NA | NA | NA |
| | | | | | | | | |
| Cancer (n/1000) by density | | | | | | | | |
| BIRADS 1 and 2 | 4.3 | 4.9 | .600 | 5.1 | .453 | 5.0 | .508 | .975 |
| BIRADS 3 and 4 | 5.2 | 6.6 | .414 | 7.4 | .243 | 8.6 | .076 | .613 |
| Cancer (n/1000) by age | | | | | | | | |
| Age below 50 yrs | 2.2 | 5.0 | .059 | 4.5 | .105 | 3.7 | .253 | .722 |
| Age 50 yrs and above | 5.6 | 5.7 | .946 | 6.4 | .517 | 7.2 | .209 | .490 |

Note. *P* values represent Pearson chi-square and Fisher's exact test *P* values, comparing proportions across each of the DBT years with the baseline DM year. The *P* (DBT) column contains the *P* values for testing the null hypothesis that values do not change significantly across the three DBT years. The NAs in the interval cancer line (bottom row) indicate that complete follow up was not available for DBT screening years 2 and 3. PPV₁ is defined as cancer cases/recalled patients, PPV₂ as biopsies recommended/total screened, and PPV₃ as biopsies performed/total screened.

eTable 3. Recall and Cancer Rates, Computed for the Last Screening

Groups defined by number of sequential digital breast tomosynthesis (DBT) screens, comparing the two- and three- screen groups with the one-screen only group.

| | One screen | One screen (w/ prior DM) | Two screens | <i>P Value</i> | Three screens | <i>P Value</i> |
|----------------------|-------------------|---------------------------------|--------------------|---------------------|----------------------|---------------------|
| N = 21395 | 12079 (56%) | 8170 | 6293 (29%) | | 3023 (14%) | |
| Recall, n/1000 | 130 | 111 | 78 | <.0001* <.0001** | 59 | <.0001* <.0001** |
| Cancer, n/1000 | 11.2 | 13 | 6.2 | <.0009* <.0001** | 7.3 | .059* .012** |
| PPV ₁ , % | 8.6 | 11.7 | 7.9 | .659* .028** | 12.4 | .089* .783** |

*Pearson chi-square *P* value, comparing proportions between the two- and three-screen groups with the one-screen group.

**Pearson chi-square *P* value, comparing proportions between the two- and three-screen groups with the one-screen group restricted to women who had previous DM screening.