Supplemental Data

Associations between use of the 21-gene Recurrence Score Assay and Chemotherapy Regimen Selection in a Statewide Registry

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Supplemental Table

Supplemental Figures

Supplemental Figure 1. Percentage of patients with HR+, HER2- breast cancer who were treated with chemotherapy, over time. Rates are given for node-negative disease (circles), micrometastatic nodal disease (triangles), macrometastatic nodal disease (diamonds), and all cohorts combined (solid line, squares).

Supplemental Figure 2. Percentage of patients with HR+, HER2-, lymph node-negative breast cancer with low recurrence scores who were treated with chemotherapy, over time.

Supplemental Figure 3A. Bubble plot demonstrating receipt of anthracycline-containing chemotherapy (chemo) regimens by recurrence score for chemotherapy-treated patients with HR+, HER2- breast cancer. Each circle represents average percentage of patients treated with an anthracycline-based regimen for each RS, and size of each circle represents the number of patients with each RS. (A) Node-negative cohort. (B) Node-positive cohort.

Supplemental Figure 4. Percentage of node-positive patients with HR+, HER2- breast cancer treated with anthracycline-based (blue), non-anthracycline based (red), and no chemotherapy (green) regimens, by recurrence score (<17, 18-30, >30, not tested).

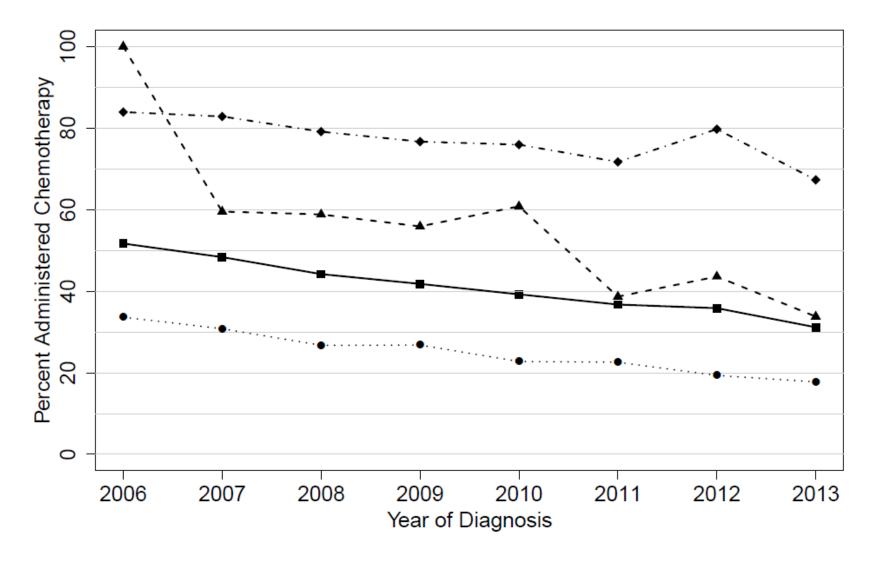
Supplemental Figure 5. Percentage of patients with HR+, HER2- breast cancer tested with the 21-gene RS assay by participating site (designated by letters on the x axis). Rates are given for patients in the NCCN concordant cohort (blue) and in the node-positive cohort (red).

Supplemental Table 1. Univariate and multivariate analyses of associations between patient and tumor characteristics of patients with HR+, HER2-breast cancer and testing with the recurrence score (RS) assay. Patients are divided into the NCCN concordant cohort and the lymph node-positive cohort.

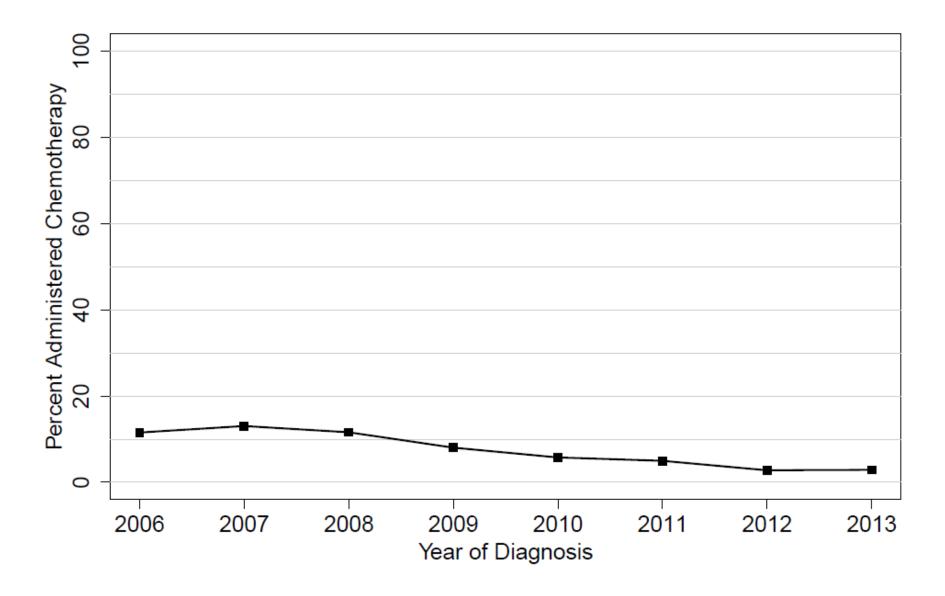
| RS assay N=3911 | No RS assay N=3213 | Univariate p-value | Multivariate | RS assay | No RS assay | Univariate | Multivariate |
|--------------------|--|--|--|---|---|--|---|
| | | | p-value | N=392 | N=2279 | p-value | p-value |
| | | | | | | | |
| | | <0.0001 | <0.0001 | | | 0.0008 | <0.0001 |
| 1024 (26%) | 540 (17%) | | | 87 (22%) | 721 (32%) | | |
| 2294 (59%) | 1258 (39%) | | | 212 (54%) | 1096 (48%) | | |
| 593 (15%) | 1415 (44%) | | | 93 (24%) | 462 (20%) | | |
| | | 0.022 | 0.002 | | | 0.220 | 0.218 |
| 352(9%) | 349 (11%) | | | 40 (10%) | 304 (13%) | | |
| 3301 (84%) | 2640 (82%) | | | 326 (83%) | 1838 (81%) | | |
| 258 (7%) | 224 (7%) | | | 26 (7%) | 137 (6%) | | |
| | | <0.0001 | <0.0001 | | | 0.381 | 0.014 |
| 3439 (88%) | 2504 (78%) | | | 326 (83%) | 1899 (83%) | | |
| 287 (7%) | 424 (13%) | | | 41 (10%) | 218 (10%) | | |
| 126 (3%) | 174 (5%) | | | 19 (5%) | 95 (4%) | | |
| 59 (2%) | 111 (3%) | | | 6 (2%) | 67 (3%) | | |
| | | 0.077 | 0.303 | | | 0.244 | 0.546 |
| 1307 (33%) | 1001 (31%) | | | 129 (32%) | 709 (31%) | | |
| 1335 (34%) | 1099 (34%) | | | 135 (34%) | 741 (33%) | | |
| 1198 (31%) | 1050 (33%) | | | 119 (30%) | 798 (35%) | | |
| 71 (2%) | 63 (2%) | | | 9 (2%) | 31 (1%) | | |
| | 2294 (59%) 593 (15%) 352(9%) 3301 (84%) 258 (7%) 3439 (88%) 287 (7%) 126 (3%) 59 (2%) 1307 (33%) 1335 (34%) 1198 (31%) | 2294 (59%) 1258 (39%) 593 (15%) 1415 (44%) 352(9%) 349 (11%) 3301 (84%) 2640 (82%) 258 (7%) 224 (7%) 3439 (88%) 2504 (78%) 287 (7%) 424 (13%) 126 (3%) 174 (5%) 59 (2%) 111 (3%) 1307 (33%) 1001 (31%) 1335 (34%) 1099 (34%) 1198 (31%) 1050 (33%) | 2294 (59%) 1258 (39%) 593 (15%) 1415 (44%) 0.022 352(9%) 349 (11%) 3301 (84%) 2640 (82%) 258 (7%) 224 (7%) 287 (7%) 424 (13%) 126 (3%) 174 (5%) 59 (2%) 111 (3%) 1307 (33%) 1001 (31%) 1335 (34%) 1099 (34%) 1198 (31%) 1050 (33%) | 2294 (59%) 1258 (39%) 593 (15%) 1415 (44%) 0.022 0.002 352(9%) 349 (11%) 3301 (84%) 2640 (82%) 258 (7%) 224 (7%) <0.0001 | 2294 (59%) 1258 (39%) 212 (54%) 593 (15%) 1415 (44%) 93 (24%) 0.022 0.002 352(9%) 349 (11%) 40 (10%) 3301 (84%) 2640 (82%) 326 (83%) 258 (7%) 224 (7%) 26 (7%) 3439 (88%) 2504 (78%) 326 (83%) 287 (7%) 424 (13%) 41 (10%) 126 (3%) 174 (5%) 19 (5%) 59 (2%) 111 (3%) 6 (2%) 1307 (33%) 1001 (31%) 129 (32%) 1335 (34%) 1099 (34%) 135 (34%) 1198 (31%) 1050 (33%) 119 (30%) | 2294 (59%) 1258 (39%) 212 (54%) 1096 (48%) 593 (15%) 1415 (44%) 93 (24%) 462 (20%) 352(9%) 349 (11%) 40 (10%) 304 (13%) 3301 (84%) 2640 (82%) 326 (83%) 1838 (81%) 258 (7%) 224 (7%) 26 (7%) 137 (6%) 3439 (88%) 2504 (78%) 326 (83%) 1899 (83%) 287 (7%) 424 (13%) 41 (10%) 218 (10%) 126 (3%) 174 (5%) 19 (5%) 95 (4%) 59 (2%) 111 (3%) 6 (2%) 67 (3%) 1307 (33%) 1001 (31%) 129 (32%) 709 (31%) 1335 (34%) 1099 (34%) 135 (34%) 741 (33%) 1198 (31%) 1050 (33%) 119 (30%) 798 (35%) | 2294 (59%) 1258 (39%) 212 (54%) 1096 (48%) 593 (15%) 1415 (44%) 93 (24%) 462 (20%) 352(9%) 349 (11%) 40 (10%) 304 (13%) 3301 (84%) 2640 (82%) 326 (83%) 1838 (81%) 258 (7%) 224 (7%) 26 (7%) 137 (6%) 287 (7%) 424 (13%) 41 (10%) 218 (10%) 126 (3%) 174 (5%) 19 (5%) 95 (4%) 59 (2%) 111 (3%) 6 (2%) 67 (3%) 1307 (33%) 1001 (31%) 129 (32%) 709 (31%) 1335 (34%) 1099 (34%) 135 (34%) 741 (33%) 1198 (31%) 1050 (33%) 119 (30%) 798 (35%) |

| Year of Diagnosis | | | <0.0001 | <0.0001 | | | <0.0001 | <0.0001 |
|-------------------------|------------|------------|---------|---------|-----------|------------|---------|---------|
| 2006-2007 | 233 (6%) | 513 (16%) | | | 5 (1%) | 333 (15%) | | |
| 2008-2011 | 1401 (36%) | 1398 (44%) | | | 107 (27%) | 968 (42%) | | |
| 2012-2014 | 2277 (58%) | 1302 (41%) | | | 280 (71%) | 978 (43%) | | |
| Tumor | | | | | | | | |
| Tumor Size | | | <0.0001 | <0.0001 | | | <0.0001 | 0.0003 |
| pT1 | 2949 (75%) | 2317 (72%) | | | 228 (58%) | 923 (41%) | | |
| pT2 | 931 (24%) | 810 (25%) | | | 153 (39%) | 1063 (47%) | | |
| pT3 | 31 (1%) | 86 (3%) | | | 9 (2%) | 239 (10%) | | |
| Other | 0 | 0 | | | 2 (1%) | 54 (2%) | | |
| Nodal Involvement | | | <0.0001 | <0.0001 | | | <0.0001 | <0.0001 |
| pN0 | 3711 (95%) | 2912 (91%) | | | 0 | 0 | | |
| pN1mi | 200 (5%) | 301 (9%) | | | 0 | 0 | | |
| pN1 | 0 | 0 | | | 369 (94%) | 1499 (66%) | | |
| pN2 | 0 | 0 | | | 18 (5%) | 534 (23%) | | |
| pN3 | 0 | 0 | | | 3 (1%) | 244 (11%) | | |
| Missing | 0 | 0 | | | 2 (1%) | 2 (0%) | | |
| Tumor Grade | | | 0.0001 | 0.012 | | | <0.0001 | 0.055 |
| 1 | 934 (24%) | 673 (21%) | | | 113 (29%) | 397 (17%) | | |
| 2 | 2303 (59%) | 1874 (58%) | | | 218 (56%) | 1247 (55%) | | |
| 3 | 625 (16%) | 619 (19%) | | | 55 (14%) | 589 (26%) | | |
| Missing | 49 (1%) | 47 (1%) | | | 6 (2%) | 46 (2%) | | |
| Receipt of Chemotherapy | | | 0.172 | <0.0001 | | | <0.0001 | <0.0001 |
| No | 2835 (72%) | 2239 (70%) | | | 210 (54%) | 402 (18%) | | |
| Yes | 923 (24%) | 787 (24%) | | | 165 (42%) | 1772 (78%) | | |
| Missing | 153 (4%) | 187 (6%) | | | 17 (4%) | 105 (5%) | | |

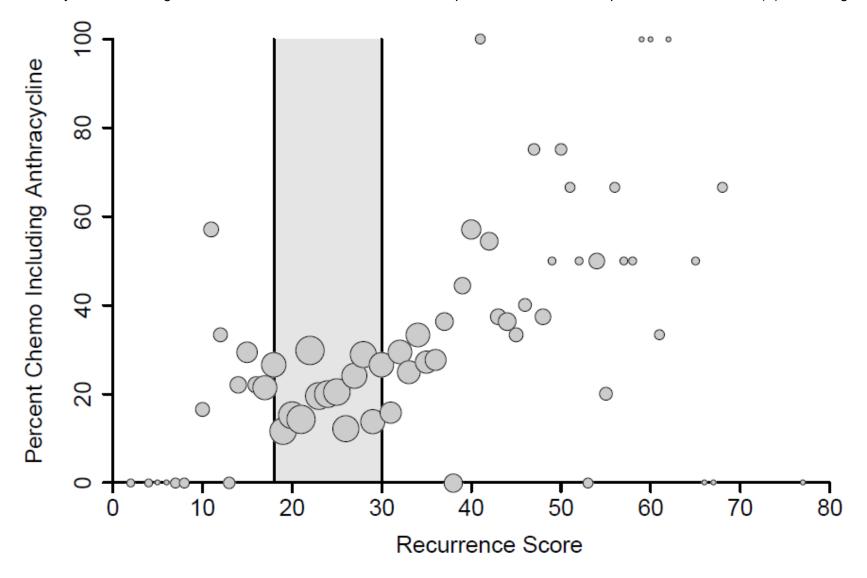
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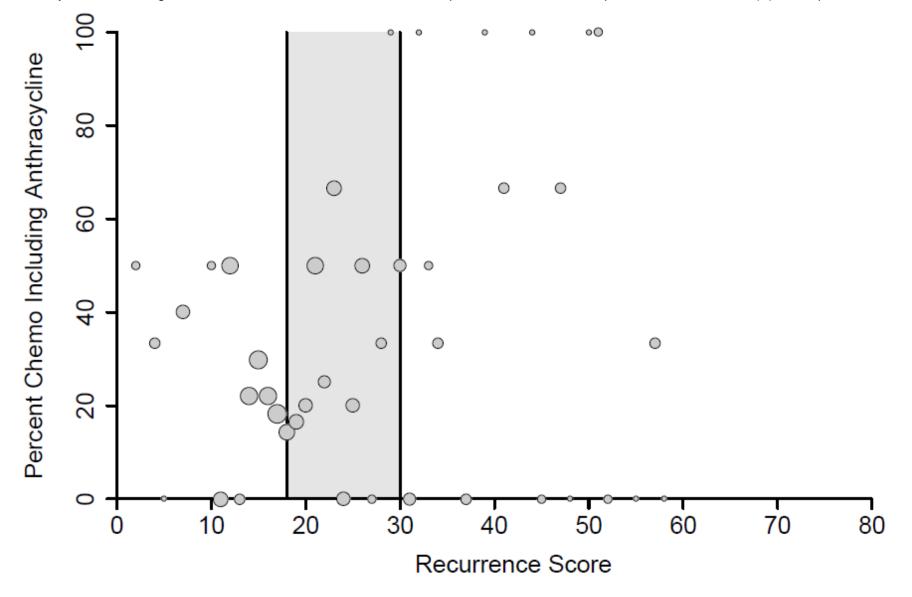
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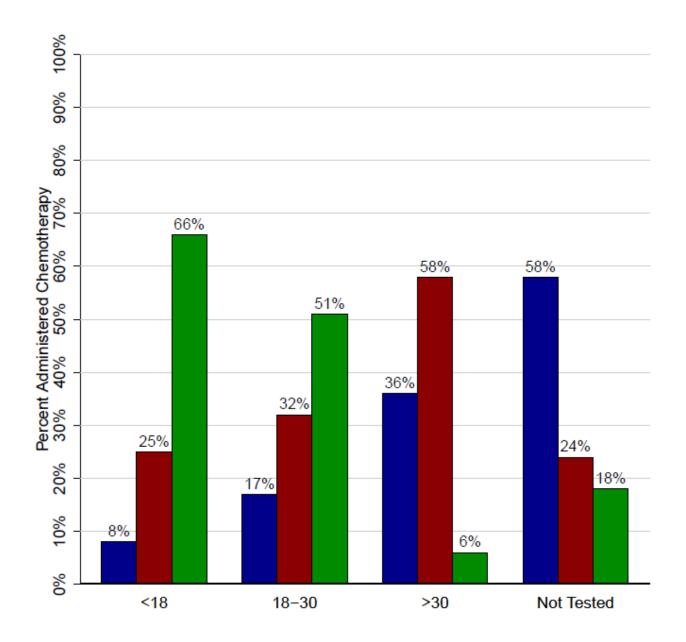
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Supplemental Figure 3B. Bubble plot demonstrating receipt of anthracycline-containing chemotherapy (chemo) regimens by recurrence score for chemotherapy-treated patients with HR+, HER2- breast cancer. Each circle represents average percentage of patients treated with an anthracycline-based regimen for each RS, and size of each circle represents the number of patients with each RS. (B) Node-positive cohort



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