| **Supplemental Table 1. Patient and tumor prognostic characteristics, used in chemotherapy indication variable** | | | |
| --- | --- | --- | --- |
| **Characteristic** | **Category** | **Total N =1901** | **%** |
| Patient age at diagnosis, years | ≥50 | 1604 | 84.4 |
|  | <50 | 294 | 15.5 |
|  | Missing | 3 | 0.2 |
| Patient menopausal status | Pre- or peri-menopausal | 401 | 21.4 |
|  | Post-menopausal | 1411 | 74.2 |
|  | Missing | 83 | 4.4 |
| Cancer stage | I | 1194 | 62.8 |
|  | II | 608 | 32.0 |
|  | Missing | 99 | 5.2 |
| Tumor size (centimeters) | <=1 | 520 | 27.4 |
|  | 1-2 | 815 | 42.9 |
|  | 2-5 | 475 | 25.0 |
|  | Missing | 91 | 4.7 |
| Axillary lymph node involvement | No | 646 | 34.0 |
|  | Yes | 1184 | 62.3 |
|  | Missing | 71 | 3.7 |
| Tumor estrogen and progesterone receptor status | Either positive | 423 | 22.3 |
|  | Both negative | 1387 | 73.0 |
|  | Missing | 91 | 4.7 |
| Tumor HER2 status | Positive | 211 | 11.1 |
|  | Negative | 1519 | 79.9 |
|  | Borderline | 46 | 2.4 |
|  | Missing | 125 | 6.6 |
| Tumor grade | 1 | 518 | 27.2 |
|  | 2 | 811 | 42.7 |
|  | 3 | 471 | 24.8 |
|  | Missing | 101 | 5.3 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Supplemental Table 2. Chemotherapy indication variable** | | | |
| **Indication for chemotherapya** | **Weak** | **Strong** | **Intermediate** |
| Inclusion criteria | Meets all the conditions below:   * Patient age at diagnosis is ≥50 years * Patient is post-menopausal * Cancer stage is I * Tumor is estrogen receptor (ER) and/or progesterone receptor (PR)-positive * Tumor is HER2-negative * Tumor is grade 1 | Meets ≥1 condition from each group below:   * Group A:   Tumor is >1 centimeter in size  Lymph nodes are involved by tumor   * Group B:   Tumor is ER and PR-negative  Tumor is HER2-positive | All others |
| N (%) of study sample (total N=1,901) | 285 (15.0) | 275 (14.5) | 1341 (70.5) |

a Chemotherapy indication is based on guidelines of the National Comprehensive Cancer Network (<http://www.nccn.org>)

| **Supplemental Table 3. Patient characteristics** | | | |
| --- | --- | --- | --- |
| **Characteristic** | **Category** | **Full sample,**  **% or mean**  **N=1901** | |
| Age at survey administration | Mean | 1898 | 61.9 |
| Study site | Georgia | 1047 | 55.1 |
|  | Los Angeles County | 854 | 44.9 |
| Race | Non-Hispanic White | 1071 | 56.3 |
|  | Non-Hispanic Black | 306 | 16.1 |
|  | Hispanic | 328 | 17.3 |
|  | Asian | 141 | 7.4 |
|  | Missing | 55 | 2.9 |
| Education | High school or less | 1160 | 61.0 |
|  | At least some college | 719 | 37.8 |
|  | Missing | 22 | 1.2 |
| Insurance status | None | 10 | 0.5 |
|  | Medicaid | 263 | 13.8 |
|  | Medicare | 552 | 29.0 |
|  | Other public insurance | 27 | 1.4 |
|  | Private | 980 | 51.6 |
|  | Missing | 69 | 3.6 |
| Household income | $40,000 or less | 578 | 30.4 |
|  | $40,000-$90,000 | 514 | 27.0 |
|  | $90,000 or more | 473 | 24.9 |
|  | Missing | 336 | 17.7 |
| Marital status | Not married | 677 | 35.6 |
|  | Married or living with a partner | 1201 | 63.2 |
|  | Missing | 23 | 1.2 |
| Used internet-based cancer support groups | Never | 1639 | 86.2 |
|  | Rare | 140 | 7.4 |
|  | Often | 80 | 4.2 |
|  | Missing | 42 | 2.2 |
| Indication for chemotherapy a | Weak | 285 | 15.0 |
|  | Intermediate | 1341 | 70.5 |
|  | Strong | 275 | 14.5 |
| Familial risk of developing breast cancer b | Average | 1376 | 72.4 |
|  | High | 525 | 27.6 |
| Receipt of 21-gene recurrence score assay | No | 236 | 12.4 |
|  | Yes | 716 | 37.7 |
|  | Missing | 949 | 49.9 |
| Results of 21-gene recurrence score assay | Low | 425 | 59.4 |
|  | Intermediate | 156 | 21.8 |
|  | High | 92 | 12.8 |
|  | Missing | 43 | 6.0 |
| Receipt of hereditary cancer genetic testing | No | 1138 | 59.9 |
|  | Yes | 610 | 32.1 |
|  | Missing | 153 | 8.0 |
| Results of hereditary cancer genetic testing | No mutation | 449 | 73.6 |
|  | Mutation (*BRCA1*, *BRCA2*, or another gene) | 37 | 6.1 |
|  | Variant of uncertain significance | 27 | 4.4 |
|  | Missing | 97 | 15.9 |
| Preferred to make own decisions about treatments for breast cancer | Stated agreement on a five-point scale, with 5 signifying highest agreement | 1858 | 3.1 |
| Chemotherapy receipt | No | 1047 | 55.1 |
|  | Yes | 840 | 44.2 |
|  | Missing | 14 | 0.7 |

a Indication for chemotherapy is as defined in **Supplemental Table 2**

b Patients were categorized as having high familial risk of developing breast cancer if they had one or more of the following: age at breast cancer diagnosis ≤45 years; bilateral breast cancer; triple-negative breast cancer diagnosed at age <60; any relative with: ovarian cancer, sarcoma, or male breast cancer; ≥2 first-degree relatives with breast cancer; for patients diagnosed at age ≤50, ≥1 first-degree relative with breast cancer; Ashkenazi Jewish ancestry; or family history of a deleterious genetic mutation (*BRCA1/2* or another mutation associated with increased breast cancer risk, e.g., *TP53*). All other patients were categorized as having average familial risk of developing breast cancer.

| **Supplemental Table 4.** Association between patient appraisal factors and receipt of second opinion | | | |
| --- | --- | --- | --- |
| **Patient Appraisal Factors** | **No second opinion,**  **mean**  **(Standard Error, SE)** | **Second opinion,**  **mean (SE)** | **p-value** |
| Mean satisfaction (on a scale of 1-5 a) with: |  |  |  |
| Information about chemotherapy | 3.07 (0.02) | 3.00 (0.07) | 0.29 |
| Involvement in chemotherapy decision | 3.01 (0.02) | 3.07 (0.07) | 0.31 |
| Decisions about chemotherapy | 4.40 (0.03) | 4.32 (0.08) | 0.29 |
| Health Care Climate Questionnaire b |  |  |  |
| Rating of medical oncologist (scale of 1-5) | 4.12 (0.03) | 4.01 (0.08) | 0.16 |

a The five-point scale for satisfaction is as follows: 1=not at all satisfied, 2=a little satisfied, 3=somewhat satisfied, 4=quite satisfied, 5=totally satisfied.

b The Health Care Climate Questionnaire measures perceived support of patient autonomy by physicians.