Use of the 21-gene recurrence score assay (RS) and chemotherapy (CT) across health care (HC) systems.

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**Background:** The Oncotype DX (Genomic Health, Redwood City, CA; GHI) RS estimates 10-yr risk of distant recurrence and CT benefit in patients (pts) with ER+, early-stage breast cancer (EBC). After 10 yrs of RS use, variability across HC settings is poorly understood. **Methods:** Patient-level clinical data from electronic medical records (EMR) of Stanford University (HC-U) and Palo Alto Medical Foundation, a community practice (HC-C) in the same catchment area, were linked with demographic data from the California Cancer Registry. RS results were obtained from GHI. Multivariable analysis, adjusted for patient age, year of diagnosis, race/ethnicity, institution, stage, nodal status, grade and histology, was used to identify factors associated with use of RS and CT. **Results:** 3,584 EBC pts met RS indications (Stage I-II, ER+, HER2-negative). RS use was only 10.4% (373 pts, 95% confidence interval [CI] 9.5-11.5%), increasing over time (2010-2011 vs. 2005-2007: odds ratio [OR] 3.03, CI 2.23-4.10). On multivariable analysis, based on subjects with complete data, factors inversely associated with RS use were high grade (vs. low: OR 0.66, CI 0.44-0.99), involved nodes (vs. none: 0.17, 0.11-0.27) and age <40 (vs. 50-64: 0.37, 0.20-0.70) or ≥65 (0.24, 0.18-0.34). Low RS results were usually associated with less (vs. no RS: 0.39, 0.25-0.59), and high results with more (7.96, 2.49-25.5) CT use. However, the 638 (17.8%) pts seen in both HC systems more often had RS (vs. HC-U only: 3.72, 2.77-5.01), and received more CT (1.51, 1.17-1.95). **Conclusions:** In 2 HC systems, CT use usually followed RS guidance. Although lower than expected, RS use rose over time, perhaps a sign of clinicians’ growing familiarity with RS. By contrast, the 17.8% of pts treated in both HC systems used more CT across all RS risk groups, suggesting less guidance by RS and over-utilization of care. These results may inform efforts to reduce unwarranted variability and optimize value.