

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

Anosheh Afghahi, Aya Mitani, Manisha Desai, Peter Paul Yu, Monique A. De Bruin, Tina Seto, Cliff Olson, Pragati Kenkare, Scarlett Lin Gomez, Amar K. Das, Harold S. Luft, Amy P. Sing, Allison W. Kurian; Stanford University School of Medicine, Stanford, CA; Palo Alto Medical Foundation, Mountain View, CA; Palo Alto Medical Foundation Research Institute, Palo Alto, CA; Cancer Prevention Institute of California (CPIC), Fremont, CA; Department of Psychiatry and The Dartmouth Institute for Health Policy and Clinical Practice, Lebanon, NH; Genomic Health, Inc., Redwood City, CA

**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.