

## SEER study of breast cancer-specific mortality in patients with poorly differentiated tumors treated based on recurrence score results

**Petkov VI, Miller DP, Howlader N, Baehner FL, Penberthy L, Shak S National Cancer Institute, Bethesda, MD; Genomic Health, Inc., Redwood City, CA**

**Introduction:** The SEER Program of the NCI is an authoritative source of cancer incidence and survival statistics. Linking the 21-gene assay Recurrence Score<sup>®</sup> (RS) results to the SEER Registries (N=44,825) demonstrated very low 5-year breast cancer-specific mortality (BCSM) with RS <18 across many key clinical-pathological subgroups, such as age, nodal status, tumor grade, and size (*npj Breast Cancer*. 2016;2:16017). Given the large sample size and specific interest in outcomes as a function of tumor grade, further stratification of patients with poorly differentiated tumors was performed to determine BCSM when examined by both tumor grade and tumor size.

**Methods:** Patients were eligible if node negative (N0), HR+, HER2-negative (by RT-PCR), had no prior malignancy, had poorly differentiated (G3) tumors, and were diagnosed between Jan 2004 (test available in Jan 2004) and Dec 2011 (SEER survival updated through 2012). BCSM was defined according to pre-existing robust methodology (*J Natl Cancer Inst*. 2010;102:1584). RS was categorized according to the cutpoints of 18 and 31 established in the NSABP B-14 study. Five-year BCSM was estimated using actuarial methods.

**Results:** Among 6,666 eligible patients with G3 tumors, 4,683 had tumors ≤2 cm and 1,983 had tumors >2 cm. Median age was 57 years; 99.1% were female. Median follow-up was 39 months. The proportion of patients with RS <18 was 29% among those with tumors ≤2 cm and 25% among those with tumors >2 cm, somewhat lower than the overall population. For RS <18, 5-year BCSM was 0.3% (G3; ≤2 cm) and 1.4% (G3; >2 cm); reported chemotherapy use was 10% and 16%, respectively. 5-year BCSM for all groups are provided in Table. An additional year of BCSM follow-up in N0 G3 disease, as well as results for patients with node positive (micrometastases or 1-3 positive nodes) G3 disease, will be available for presentation.

	N0, G3 tumor, RS <18		N0, G3 tumor, RS 18-30		N0, G3 tumor, RS ≥31	
Tumor size	N	5-y BCSM (95% CI)	N	5-y BCSM (95% CI)	N	5-y BCSM (95% CI)
≤2 cm	1362	0.3% (0.1%, 1.2%)	2148	2.1% (1.3%, 3.3%)	1173	2.9% (1.8%, 4.7%)
>2 cm	486	1.4% (0.4%, 4.6%)	851	4.6% (2.7%, 7.8%)	646	9.0% (6.0%, 13.4%)

**Conclusions:** Although patients with poorly differentiated tumors have worse prognosis in general, the RS identifies a sizable proportion of patients who can expect good outcomes without chemotherapy and its associated toxicity.

**Session:** Poster Discussion: Multi Gene Markers and Decision Making (7:30 AM-9:00 AM)

**Date/Time:** Friday, December 9, 2016 - 7:30 am

**Room:** Stars at Night Ballroom 1&2 - 3rd Level

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