**Table 2: Univariable Cox analysis**

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|  | **Secondary** | **Primary** |
| **Characteristics** | HR (95%CI) | HR (95%CI) |
| **Race**  White  Black  Other (American Indian/ AK Native, Asian/ Pacific Islander) | referent  0.97 (0.40-2.39), 0.953  0.84 (0.31-2.31), 0.746 | referent  1.50 (0.65-3.48), 0.346  0.86 (0.39-1.88),0.698 |
| **Age at Diagnosis**  Continuous | 1.05 (1.03-1.06), <0.001 | 1.01 (1.00-1.02), 0.054 |
| **Size**  Continuous | 1.00 (1.00-1.01), 0.036 | 1.01 (1.01-1.01), <0.001 |
| **Tumor Grade**  I  II  III  IV  Missing | 0.32 (0.11-0.89), 0.030  0.83 (0.44-1.59), 0.582  0.92 (0.56-1.49), 0.730  referent  0.79 (0.48-1.28), 0.340 | 0.37 (0.17-0.78), 0.010  0.35 (0.17-0.70), 0.003  1.09 (0.58-2.05), 0.972  referent  0.39 (0.15-0.98), 0.046 |
| **Lymph node involvement**  Negative  Positive  Unknown | referent  2.14 (0.67-6.82), 0.197  1.52 (0.90-2.56), 0.120 | referent  3.29 (1.30-8.30), 0.012  1.19 (0.58-2.41), 0.637 |
| **Tumor Stage**  Local  Regional | referent  1.92 (1.31-2.82), 0.001 | referent  3.15 (1.84-5.40), <0.001 |
| **Primary Site**  Nipple  Central portion of breast  Upper-inner quadrant of breast  Lower- inner quadrant of breast  Upper- outer quadrant of breast  Lower- outer quadrant of breast  Overlapping lesion of breast  Breast, NOS | 2.11 (0.76-5.83), 0.152  1.46 (0.76-2.79), 0.252  0.84 (0.21-3.46), 0.815  1.62 (0.64-4.05), 0.306  0.47 (0.19-1.18), 0.107  1.11 (0.45-2.78), 0.820  1.42 (0.87-2.30), 0.161  referent | n/a  0.78 (0.18-3.30), 0.736  0.35 (0.12-1.01), 0.052  0.37 (0.11-1.23), 0.104  0.55 (0.25-1.22), 0.140  0.33 (0.04-2.42), 0.275  1.06 (0.62-1.82), 0.831  referent |
| **Radiation**  No/Unknown  Yes | referent  0.72 (0.35-1.48), 0.374 | referent  1.21 (0.74-1.96), 0.445 |
| **Chemotherapy**  No/Unknown  Yes | referent  0.76 (0.47-1.21), 0.240 | referent  1.14 (0.68-1.90), 0.627 |