

Supplementary Table 2. Variable selection frequency using backwards stepwise procedure in Cohort-1

| Variable | SWR Bootstrap N=20,000 | |
|------------------------------|---------------------------|---------|
| | Frequency* | Percent |
| Positive surgical margin | 16436 | 82.2 |
| Overall clinical stage | 14306 | 71.5 |
| Pathologic level IV/ V nodes | 8783 | 43.9 |
| Lymphovascular invasion | 7342 | 36.7 |
| Overall pathologic stage | 6910 | 34.6 |
| Age | 4811 | 24.1 |
| Extranodal extension | 2639 | 13.2 |
| Smoking history | 949 | 4.7 |
| Sex | 1311 | 6.6 |
| Perineural invasion | 1249 | 6.2 |
| Charlson comorbidity | 1698 | 8.5 |
| Race | 24 | 0.1 |
| Intercept | 20,000 | |

*Number of times the variable was selected out of 20,000