

| Variable  | Hazard ratio | P-value  | Corrected P-value |
|---|--------------|----------|-------------------|
| INITIAL_PATHOLOGIC_DX_YEAR                            | 0.944473     | 0.000002 | 0.000085          |
| age_at_diagnosis                                      | 1.019742     | 0.001594 | 0.012355          |
| PRIMARY_SITE_Floor of mouth                           | 1.633189     | 0.009866 | 0.048599          |
| PRIMARY_SITE_Larynx                                   | 0.870495     | 0.392949 | 0.589424          |
| PRIMARY_SITE_Oral Cavity                              | 1.216594     | 0.257959 | 0.436185          |
| PRIMARY_SITE_Oral Tongue                              | 1.027363     | 0.864976 | 0.935381          |
| LATERALITY_Left                                       | 0.997223     | 0.985683 | 0.985683          |
| LATERALITY_Right                                      | 0.596169     | 0.001229 | 0.010391          |
| LATERALITY_[Not Available]                            | 1.487693     | 0.003515 | 0.021791          |
| PROSPECTIVE_COLLECTION_NO                             | 1.275968     | 0.136430 | 0.309463          |
| PROSPECTIVE_COLLECTION_YES                            | 0.796014     | 0.163125 | 0.337124          |
| RETROSPECTIVE_COLLECTION_NO                           | 0.796014     | 0.163125 | 0.337124          |
| RETROSPECTIVE_COLLECTION_YES                          | 1.275968     | 0.136430 | 0.309463          |
| SEX_Female  | 1.382324     | 0.024394 | 0.087255          |
| SEX_Male  | 0.723420     | 0.024394 | 0.087255          |
| RACE_WHITE  | 0.742605     | 0.111804 | 0.273433          |
| ETHNICITY_NOT HISPANIC OR LATINO                      | 0.853619     | 0.414453 | 0.611812          |
| LYMPH_NODE_NECK_DISSECTION_INDICATOR_NO               | 1.236683     | 0.203896 | 0.403454          |
| LYMPH_NODE_NECK_DISSECTION_INDICATOR_YES              | 0.814286     | 0.215391 | 0.412907          |
| LYMPH_NODE_DISSECTION_METHOD_Functional (Limite...    | 1.086460     | 0.540168 | 0.749786          |
| LYMPH_NODE_DISSECTION_METHOD_Modified Radical N...    | 0.741422     | 0.093637 | 0.241895          |
| LYMPH_NODE_DISSECTION_METHOD_[Not Available]          | 1.090921     | 0.583249 | 0.763974          |
| LYMPH_NODES_EXAMINED_NO                               | 1.470161     | 0.061855 | 0.179766          |
| LYMPH_NODES_EXAMINED_YES                              | 0.837805     | 0.290092 | 0.481761          |
| PATH_MARGIN_Negative                                  | 0.777605     | 0.079280 | 0.216854          |
| PATH_MARGIN_Positive                                  | 1.727697     | 0.002205 | 0.014645          |
| PATH_MARGIN_[Not Available]                           | 0.699698     | 0.158253 | 0.337124          |
| AJCC_STAGING_EDITION_6th                              | 1.010909     | 0.944167 | 0.955798          |
| AJCC_STAGING_EDITION_7th                              | 0.973421     | 0.855035 | 0.935381          |
| AJCC_PATHOLOGIC_TUMOR_STAGE_Stage II                  | 0.668524     | 0.054444 | 0.168777          |
| AJCC_PATHOLOGIC_TUMOR_STAGE_Stage III                 | 0.726051     | 0.114665 | 0.273433          |
| AJCC_PATHOLOGIC_TUMOR_STAGE_Stage IVA                 | 1.532143     | 0.001807 | 0.012924          |
| AJCC_PATHOLOGIC_TUMOR_STAGE_[Not Available]           | 0.962185     | 0.849093 | 0.935381          |
| EXTRACAPSULAR_SPREAD_PATHOLOGIC_Microscopic<br>Ext... | 2.254494     | 0.000001 | 0.000085          |
| EXTRACAPSULAR_SPREAD_PATHOLOGIC_No Extranodal<br>E... | 0.548915     | 0.000017 | 0.000392          |
| EXTRACAPSULAR_SPREAD_PATHOLOGIC_[Not Available]       | 0.990168     | 0.945521 | 0.955798          |
| GRADE_G1  | 0.657592     | 0.059833 | 0.179498          |
| GRADE_G2  | 1.431246     | 0.010999 | 0.050448          |
| GRADE_G3  | 0.957962     | 0.783689 | 0.915850          |
| ANGIOLYMPHATIC_INVASION_NO                            | 0.693371     | 0.009929 | 0.048599          |
| ANGIOLYMPHATIC_INVASION_YES                           | 1.484568     | 0.008174 | 0.047509          |
| ANGIOLYMPHATIC_INVASION_[Not Available]               | 1.057948     | 0.692475 | 0.847371          |
| PERINEURAL_INVASION_NO                                | 0.516015     | 0.000030 | 0.000565          |
| PERINEURAL_INVASION_YES                               | 1.588730     | 0.000670 | 0.006230          |
| PERINEURAL_INVASION_[Not Available]                   | 1.147166     | 0.339620 | 0.535334          |
| HPV_STATUS_P16_Negative                               | 0.856744     | 0.477818 | 0.673289          |
| HPV_STATUS_P16_[Not Available]                        | 1.469555     | 0.052450 | 0.168202          |
| HPV_STATUS_ISH_Negative                               | 0.842503     | 0.448772 | 0.642089          |
| HPV_STATUS_ISH_[Not Available]                        | 1.564703     | 0.043660 | 0.145013          |
| TOBACCO_SMOKING_HISTORY_INDICATOR_1                   | 0.853226     | 0.347479 | 0.538592          |

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| TOBACCO_SMOKING_HISTORY_INDICATOR_2          | 1.349280 | 0.033815 | 0.116475 |
| TOBACCO_SMOKING_HISTORY_INDICATOR_3          | 0.708845 | 0.088463 | 0.235059 |
| TOBACCO_SMOKING_HISTORY_INDICATOR_4          | 0.949831 | 0.733565 | 0.874635 |
| ALCOHOL_HISTORY_DOCUMENTED_NO                | 1.064729 | 0.660954 | 0.841584 |
| ALCOHOL_HISTORY_DOCUMENTED_YES               | 0.941649 | 0.669647 | 0.841584 |
| RADIATION_TREATMENT_ADJUVANT_NO              | 1.062557 | 0.787828 | 0.915850 |
| RADIATION_TREATMENT_ADJUVANT_YES             | 0.905136 | 0.549419 | 0.751412 |
| RADIATION_TREATMENT_ADJUVANT_[Not Available] | 1.055628 | 0.712535 | 0.860594 |
| PHARMACEUTICAL_TX_ADJUVANT_NO                | 0.774111 | 0.144766 | 0.320553 |
| PHARMACEUTICAL_TX_ADJUVANT_YES               | 1.454739 | 0.067970 | 0.191551 |
| PHARMACEUTICAL_TX_ADJUVANT_[Not Available]   | 1.032903 | 0.825634 | 0.935381 |
| CLIN_N_STAGE_N0                              | 0.853501 | 0.240473 | 0.436185 |
| CLIN_N_STAGE_N1                              | 0.915126 | 0.621348 | 0.802575 |
| CLIN_N_STAGE_N2b                             | 0.980360 | 0.916449 | 0.955798 |
| CLIN_T_STAGE_T2                              | 0.838379 | 0.251047 | 0.436185 |
| CLIN_T_STAGE_T3                              | 1.269859 | 0.104375 | 0.262348 |
| CLIN_T_STAGE_T4a                             | 1.014869 | 0.918479 | 0.955798 |
| CLINICAL_STAGE_Stage II                      | 0.872315 | 0.435405 | 0.632698 |
| CLINICAL_STAGE_Stage III                     | 0.978740 | 0.898501 | 0.955798 |
| CLINICAL_STAGE_Stage IVA                     | 1.138939 | 0.338664 | 0.535334 |
| ICD_10_C02.9                                 | 0.970829 | 0.852993 | 0.935381 |
| ICD_10_C04.9                                 | 2.068995 | 0.000137 | 0.001823 |
| ICD_10_C14.8                                 | 1.218218 | 0.254981 | 0.436185 |
| ICD_10_C32.9                                 | 0.914839 | 0.578172 | 0.763974 |
| ICD_O_3_HISTOLOGY_8070/3                     | 1.344115 | 0.221993 | 0.412907 |
| ICD_O_3_HISTOLOGY_8071/3                     | 0.898413 | 0.682330 | 0.846089 |
| ICD_O_3_SITE_C02.9                           | 0.970829 | 0.852993 | 0.935381 |
| ICD_O_3_SITE_C04.9                           | 2.068995 | 0.000137 | 0.001823 |
| ICD_O_3_SITE_C14.8                           | 1.218218 | 0.254981 | 0.436185 |
| ICD_O_3_SITE_C32.9                           | 0.914839 | 0.578172 | 0.763974 |
| TISSUE_SOURCE_SITE_CN                        | 1.213414 | 0.297016 | 0.484604 |
| TISSUE_SOURCE_SITE_CR                        | 0.431810 | 0.009643 | 0.048599 |
| TISSUE_SOURCE_SITE_CV                        | 1.663811 | 0.000385 | 0.003978 |
| AJCC_TUMOR_PATHOLOGIC_PT_simple_T2           | 0.659617 | 0.011391 | 0.050448 |
| AJCC_TUMOR_PATHOLOGIC_PT_simple_T3           | 1.459494 | 0.016649 | 0.070379 |
| AJCC_TUMOR_PATHOLOGIC_PT_simple_T4           | 1.388501 | 0.017779 | 0.071889 |
| AJCC_NODES_PATHOLOGIC_PN_simple_N0           | 0.556349 | 0.000185 | 0.002146 |
| AJCC_NODES_PATHOLOGIC_PN_simple_N1           | 0.576861 | 0.022426 | 0.086899 |
| AJCC_NODES_PATHOLOGIC_PN_simple_N2           | 1.834907 | 0.000009 | 0.000292 |
| AJCC_NODES_PATHOLOGIC_PN_simple_NX           | 1.165686 | 0.381317 | 0.581352 |
| AJCC_METASTASIS_PATHOLOGIC_PM_simple_M0      | 0.818485 | 0.176511 | 0.356858 |
| AJCC_METASTASIS_PATHOLOGIC_PM_simple_MX      | 0.979428 | 0.928250 | 0.955798 |
| AJCC_METASTASIS_PATHOLOGIC_PM_simple_[N      | 1.185902 | 0.220529 | 0.412907 |