**Supplementary Table 1: Diagnosis and Billing Codes Utilized**

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| --- | --- |
|  | **Codes** |
| **Bladder cancer** | ICD-O-3 code: C670, C671, C672, C673, C674, C675, C676, C677, C678, C679 |
| **Prostate cancer** | ICD-O-3 code: C619 |
| **Radiation** | HCPCS: 77261, 77262, 77623, 77299, 77280, 77285, 77290, 77293, 77295, 77300 – 77399, 77401 – 77417, 77419-77431, 77470, G0338, 76370, 77014, G6001, G6002 and G6017, 77387, 77750 – 77799, C1715-C1720, C1728, C2616, C2632, C2633, G0261, G0256, G0273, G0274, 77520, 77521, 77522, 77523, 77524 77338, G6015, G6016, G6017ICD-9 diagnosis code: V580, V671 |
| **Chemotherapy**  | HCPCS: J9060, J9062, C9418, J9045, J9370, J9375, J9380, J9371, J8610, J9250, J9260, J9000, Q2049, Q2050, J9199, J9201 |
| **Checkpoint Inhibitors** | HCPCS: J9023, J9022 C9483, C9453, J9299, C9027, J9271, C9492 |
| **Radical Cystectomy** | HCPCS: 51570, 51575, 51580, 51585, 51590, 51595, 51596ICD-9 procedure code: 57.71, 57.79ICD-10 procedure code: 0TTB0ZZ, 0TTB4ZZ, 0TTB7ZZ, 0TTB8ZZ, 0TRB07Z, 0TRB47Z, 0TTB3ZZ |
| **Partial Cystectomy** | HCPCS: 51550, 51555, 51565ICD-9 procedure code: 57.6ICD-10 procedure code: 57.59, 0TBB0ZZ, 0TBB4ZZ |

**Supplementary Table 2. Demographics, Tumor Characteristics and 5-Year Disease Progression Outcomes of Sensitivity Analysis Cohorta**

|  |  |  |  |
| --- | --- | --- | --- |
|   | **Without prior radiation therapy (N=23,171)** | **With prior radiation therapy (N=1,188)** | ***P* value** |
| ***Age, median (IQR)*** | 77.0 (72.0-82.0) | 78.0 (74.0-83.0) | <.001 |
| ***Race*** | <.001 |
|  White | 21,658 (94.0%) | 11,02 (92.8%) |  |
|  Black | 579 (2.5%) | 62 (5.2%) |  |
|  Otherb | 654 (2.8%) | 24 (2.0%) |  |
|  Unknown | 152 (0.7%) | 0 (0.0%) |  |
| ***Married*** | 15,819 (73.1%) | 824 (75.3%) | 0.10 |
| ***Median income for zip code (× $10,000), median (IQR)*** | 5.0 (3.8, 6.6) | 5.5 (4.2, 7.3) | <.001 |
| ***Region of patient residence*** | <.001 |
|  Midwest | 2,846 (12.3%) | 188 (15.8%) |   |
|  Northeast | 5,679 (24.5%) | 330 (27.8%) |   |
|  South | 5,359 (23.1%) | 205 (17.3%) |   |
|  West | 9,287 (40.1%) | 465 (39.1%) |   |
| ***Rural-Urban Continuum Code*** | 0.07 |
|  Metropolitan Counties | 19,359 (83.6%) | 1,016 (85.5%) |   |
|  Nonmetropolitan Counties | 3,809 (16.4%) | 172 (14.5%) |   |
| ***Charlson comorbidity index score, n (%)*** | 0.14 |
|  0-1 | 15,754 (68.0%) | 807 (67.9%) |   |
|  2-3 | 5,310 (22.9%) | 255 (21.5%) |   |
|  4+ | 2,107 (9.1%) | 126 (10.6%) |   |
| ***Tumor Histology findings*** | 0.83 |
|  Unspecified neoplasms | <11 (<0.001%) | <11 (<0.9%) |   |
|  Epithelial neoplasms | 146 (0.6%) | <11 (<0.9%) |   |
|  Squamous cell neoplasms | 212 (0.9%) | 11 (0.9%) |   |
|  Transitional cell carcinomas | > 22,713 (>98.0%) | >1144 (>96.3%) |   |
|  Adenomas and adenocarcinomas | 53 (0.2%) | <11 (<0.9%) |   |
|  Cystic, mucinous and serous neoplasms | 14 (0.1%) | 0 (0.0%) |   |
| Complex mixed and stromal neoplasms | <11 (<0.001%) | 0 (0.0%) |  |
| Osseous and chondromatous neoplasms | <11 (<0.001%) | 0 (0.0%) |  |
| ***AJCC T Stage*** | <.001 |
|  Ta | 14,282 (61.6%) | 789 (66.4%) |   |
|  Tis | 1,632 (7.0%) | 110 (9.3%) |   |
|  T1 | 7,257 (31.3%) | 289 (24.3%) |   |
| ***Grade***  (n= 19,395) (n=908) | 0.08 |
|  Low  | 11,149 (57.5%) | 549 (60.5%) |   |
|  High | 8,246 (42.5%) | 359 (39.5%) |   |
| ***BCG treatments within 1 year after bladder cancer diagnosis, No.*** |  |  | 0.46 |
|  **No** | 15,302 (66.0%) | 797 (67.1%) |  |
|  **Yes** | 7,869 (34.0%) | 391 (32.9%) |  |
| **5-Year Disease Progression** |
| **Systemic chemotherapy** | 934 (4.0%) | 62 (5.2%) | 0.04 |
| **Checkpoint inhibitors** | 13 (0.1%) | <11 (<0.9%) | 0.69 |
| **Radical cystectomy**  | 663 (2.9%) | 43 (3.6%) | 0.13 |
| **Partial cystectomy**  | 268 (1.2%) | <11 (<0.9%) | 0.32 |
| **Cancer-specific death**  | 1,791 (7.7%) | 85 (7.2%) | 0.61 |
| **5-year total progressionc** | 2,935 (12.7%) | 148 (12.5%) | 0.831 |

Abbreviations: AJCC, American Joint Committee on Cancer; BCG, bacille Calmette-Guérin; NMIBC, non–muscle-invasive bladder cancer; RT, radiation therapy; TURBT, transurethral resection of bladder tumor.

a Data are number (%) unless otherwise indicated. Specific numbers fewer than 11 cannot be reported according to requirements from Surveillance, Epidemiology, and End Results.

b Other race includes American Indian/Alaska Native, Asian/Pacific Islander.

c Five-year total progression included progression to requiring systemic chemotherapy, checkpoint inhibitors, radical or partial cystectomy, or cancer-specific death.