**SUPPLEMENTARY DATA**

**Real-word utility of procalcitonin in patients hospitalized with community-acquired pneumonia: A matched cohort study**

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**Supplementary Table 1: ICD-10 Codes for Pneumonia Diagnosis in the Overall and Matched Cohorts**

| **Diagnosis Code** | **Overall Cohort** | | **Matched Cohort** | |
| --- | --- | --- | --- | --- |
| **No (N=8849)** | **Yes (N=6515)** | **No (N=6440)** | **Yes (N=6440)** |
| A37.01 | 1 (0%) | 0 (0%) | 1 (0%) | 0 (0%) |
| A37.81 | 0 (0%) | 1 (0%) | 0 (0%) | 1 (0%) |
| A37.91 | 0 (0%) | 1 (0%) | 0 (0%) | 1 (0%) |
| A48.1 | 54 (0.6%) | 46 (0.7%) | 36 (0.6%) | 46 (0.7%) |
| B01.2 | 3 (0%) | 0 (0%) | 3 (0%) | 0 (0%) |
| J09.X1 | 7 (0.1%) | 5 (0.1%) | 6 (0.1%) | 5 (0.1%) |
| J10.00 | 70 (0.8%) | 55 (0.8%) | 53 (0.8%) | 53 (0.8%) |
| J10.08 | 102 (1.2%) | 91 (1.4%) | 72 (1.1%) | 90 (1.4%) |
| J11.00 | 7 (0.1%) | 2 (0%) | 6 (0.1%) | 2 (0%) |
| J11.08 | 9 (0.1%) | 9 (0.1%) | 4 (0.1%) | 9 (0.1%) |
| J12.0 | 3 (0%) | 7 (0.1%) | 3 (0%) | 7 (0.1%) |
| J12.1 | 95 (1.1%) | 87 (1.3%) | 70 (1.1%) | 87 (1.4%) |
| J12.2 | 30 (0.3%) | 24 (0.4%) | 20 (0.3%) | 23 (0.4%) |
| J12.3 | 50 (0.6%) | 59 (0.9%) | 36 (0.6%) | 58 (0.9%) |
| J12.81 | 2 (0%) | 0 (0%) | 1 (0%) | 0 (0%) |
| J12.82 | 1 (0%) | 0 (0%) | 1 (0%) | 0 (0%) |
| J12.89 | 65 (0.7%) | 73 (1.1%) | 47 (0.7%) | 71 (1.1%) |
| J12.9 | 66 (0.7%) | 91 (1.4%) | 52 (0.8%) | 91 (1.4%) |
| J13 | 149 (1.7%) | 125 (1.9%) | 110 (1.7%) | 124 (1.9%) |
| J14 | 43 (0.5%) | 31 (0.5%) | 30 (0.5%) | 31 (0.5%) |
| J15.0 | 63 (0.7%) | 53 (0.8%) | 42 (0.7%) | 53 (0.8%) |
| J15.1 | 177 (2%) | 161 (2.5%) | 142 (2.2%) | 160 (2.5%) |
| J15.20 | 22 (0.2%) | 13 (0.2%) | 14 (0.2%) | 12 (0.2%) |
| J15.211 | 109 (1.2%) | 83 (1.3%) | 74 (1.1%) | 81 (1.3%) |
| J15.212 | 86 (1%) | 74 (1.1%) | 73 (1.1%) | 74 (1.1%) |
| J15.29 | 4 (0%) | 2 (0%) | 2 (0%) | 2 (0%) |
| J15.3 | 5 (0.1%) | 5 (0.1%) | 0 (0%) | 5 (0.1%) |
| J15.4 | 47 (0.5%) | 43 (0.7%) | 30 (0.5%) | 41 (0.6%) |
| J15.5 | 31 (0.4%) | 34 (0.5%) | 19 (0.3%) | 32 (0.5%) |
| J15.6 | 321 (3.6%) | 246 (3.8%) | 234 (3.6%) | 244 (3.8%) |
| J15.7 | 26 (0.3%) | 47 (0.7%) | 19 (0.3%) | 46 (0.7%) |
| J15.8 | 120 (1.4%) | 75 (1.2%) | 83 (1.3%) | 75 (1.2%) |
| J15.9 | 1393 (15.7%) | 1077 (16.5%) | 1003 (15.6%) | 1065 (16.5%) |
| J16.0 | 7 (0.1%) | 4 (0.1%) | 6 (0.1%) | 4 (0.1%) |
| J16.8 | 24 (0.3%) | 21 (0.3%) | 19 (0.3%) | 21 (0.3%) |
| J17 | 6 (0.1%) | 1 (0%) | 5 (0.1%) | 1 (0%) |
| J18.0 | 101 (1.1%) | 84 (1.3%) | 73 (1.1%) | 83 (1.3%) |
| J18.1 | 315 (3.6%) | 219 (3.4%) | 235 (3.6%) | 216 (3.4%) |
| J18.8 | 67 (0.8%) | 42 (0.6%) | 41 (0.6%) | 40 (0.6%) |
| J18.9 | 3922 (44.3%) | 2827 (43.4%) | 2820 (43.8%) | 2803 (43.5%) |
| J69.0 | 2200 (24.9%) | 1577 (24.2%) | 1640 (25.5%) | 1553 (24.1%) |
| J84.116 | 15 (0.2%) | 31 (0.5%) | 8 (0.1%) | 31 (0.5%) |
| J85.1 | 102 (1.2%) | 41 (0.6%) | 75 (1.2%) | 41 (0.6%) |

**Supplementary Table 2: Matching Variables in Overall and Matched Cohorts**

| **Matching variable** | **Overall Cohort** | | | **Matched Cohort** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **No PCT (N=8849)** | **PCT (N=6515)** | **Standard Difference** | **No PCT (N=6440)** | **PCT (N=6440)** | **Standard Difference** |
| **Age** |  |  |  |  |  |  |
| 18-34 | 390 (4.4%) | 295 (4.5%) | 0.006 | 263 (4.1%) | 263 (4.1%) | 0 |
| 35-64 | 2524 (28.5%) | 1787 (27.4%) | -0.025 | 1781 (27.7%) | 1781 (27.7%) | 0 |
| 65-79 | 3390 (38.3%) | 2523 (38.7%) | 0.009 | 2502 (38.9%) | 2502 (38.9%) | 0 |
| ≥80 | 2545 (28.8%) | 1910 (29.3%) | 0.012 | 1894 (29.4%) | 1894 (29.4%) | 0 |
| **ICU Admission** |  |  |  |  |  |  |
| No | 6829 (77.2%) | 5076 (77.9%) | 0.018 | 5042 (78.3%) | 5042 (78.3%) | 0 |
| Yes | 2020 (22.8%) | 1439 (22.1%) | -0.018 | 1398 (21.7%) | 1398 (21.7%) | 0 |
| **CCI** |  |  |  |  |  |  |
| 0 | 506 (5.7%) | 402 (6.2%) | 0.019 | 384 (6.0%) | 384 (6.0%) | 0 |
| 1-3 | 2502 (28.3%) | 1824 (28.0%) | -0.006 | 1824 (28.3%) | 1824 (28.3%) | 0 |
| 4-6 | 2267 (25.6%) | 1696 (26.0%) | 0.009 | 1682 (26.1%) | 1682 (26.1%) | 0 |
| 7-9 | 1785 (20.2%) | 1334 (20.5%) | 0.008 | 1318 (20.5%) | 1318 (20.5%) | 0 |
| 10-12 | 1165 (13.2%) | 827 (12.7%) | -0.014 | 817 (12.7%) | 817 (12.7%) | 0 |
| 13-15 | 435 (4.9%) | 293 (4.5%) | -0.02 | 284 (4.4%) | 284 (4.4%) | 0 |
| >15 | 189 (2.1%) | 139 (2.1%) | 0 | 131 (2.0%) | 131 (2.0%) | 0 |
| **Year** |  |  |  |  |  |  |
| 2018-2019 | 2731 (30.9%) | 2256 (34.6%) | 0.079 | 2220 (34.5%) | 2220 (34.5%) | 0 |
| 2020-2021 | 3581 (40.5%) | 2422 (37.2%) | -0.068 | 2413 (37.5%) | 2413 (37.5%) | 0 |
| 2022-2023 | 2537 (28.7%) | 1837 (28.2%) | -0.011 | 1807 (28.1%) | 1807 (28.1%) | 0 |

**Supplementary Table 3: Overall Average Treatment Duration by Region**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Region** | ARZ (N=3227) | FLA (N=2882) | NWWI (N=1724) | RST (N=3528) | SEMN (N=1424) | SWMN (N=1655) | SWWI (N=924) |
| **Mean Treatment Duration, days** | 5.0 (3.9) | 5.3 (4.6) | 4.7 (2.6) | 4.6 (3.4) | 4.1 (1.9) | 4.7 (2.8) | 4.4 (2.7) |

**Supplementary Table 4: Outcomes Among Patients with Abnormal Procalcitonin Compared to Patients with Normal Procalcitonin in the Overall Cohort**

|  |  |  |  |
| --- | --- | --- | --- |
| Outcome | PCT ≥0.25 (N=3217) | PCT <0.25 (N=3298) | p value |
| **Treatment Duration** | 5.5 (4.1) | 4.7 (3.5) | <0.001 |
| **Days of Therapy** | 9.3 (6.8) | 7.9 (5.9) | <0.001 |
| **Length of stay (days)** | 7.6 (9.6) | 6.0 (7.5) | <0.001 |
| **Cumulative ASI** | 52.2 (42.7) | 43.4 (36.8) | < 0.001 |
| **Number of CT Chest Scans** | 0.4 (0.5) | 0.3 (0.5) | < 0.001 |
| **30-day all-cause mortality** | 459 (14%) | 237 (7%) | < 0.001 |
| ***C. difficile* within 90 days of index admission** | 13 (0%) | 10 (0%) | 0.536 |

Results are shown as mean (standard deviation) or number (%) unless otherwise noted.

**Supplementary Table 5: Outcomes Among Patients without Procalcitonin Compared to Patients with Abnormal Procalcitonin in the Overall Cohort**

|  |  |  |  |
| --- | --- | --- | --- |
| Outcome | No PCT (N=8849) | PCT ≥0.25 (N=3217) | p value |
| **Patient Antibiotic Days** | 4.6 (3.2) | 5.5 (4.1) | <0.001 |
| **Days of Therapy** | 7.6 (5.7) | 9.3 (6.8) | <0.001 |
| **Length of stay (days)** | 5.9 (6.9) | 7.6 (9.6) | <0.001 |
| **Cumulative ASI** | 41.2 (34.2) | 52.2 (42.7) | < 0.001 |
| **Number of CT Chest Scans** | 0.2 (0.5) | 0.4 (0.5) | < 0.001 |
| **30-day all-cause mortality** | 968 (11%) | 459 (14%) | < 0.001 |
| ***C. difficile* within 90 days of index admission** | 38 (0%) | 13 (0%) | 0.416 |

Results are shown as mean (standard deviation) or number (%) unless otherwise noted.