**Supplementary Table S1: Demographics and outcomes summary of study cohort**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Number of patients (%)** | **Median morbidity count (IQR)** | **Percent (95% CI) with multimorbidity** | **SOFA score****(95% CI)** | **LOS ICU****(95% CI)** | **LOS Hospital****(95% CI)** | **Percent Mortality****(95% CI)** |
| **All patients** | 36390 (100%) | 3（2-4） | 77.27%（76.84%, 77.70%) | 3.99(3.96, 4.02) | 4.12(4.06, 4.18) | 10.06(9.95, 10.17) | 10.9(10.6, 11.3) |
| **Sex** |  |  |  |
| male | 21052 (57.85%) | 3 (2-4) | 76% (75.42%, 76.57%) | 4.13(4.09, 4.17) | 4.07(4, 4.17) | 10.06(9.91, 10.21) | 10.3(9.95, 10.8) |
| female | 15338 (42.15%) | 3 (2-4) | 79.02% (78.37%, 79.66%) | 3.79(3.74, 3.84) | 4.17(4.07, 4.27) | 10.06(9.89, 10.22) | 11.7(11.2, 12.2) |
|  | **Age (years)** |  |  |
| 16-24 | 1220 (3.35%) | 1 (0-2) | 33.11%（20.53%, 35.80%） | 2.63(2.48, 2.77) | 3.4(3.12, 3.69) | 8.12(7.56, 8.67) | 4.4(3.3, 5.8) |
| 25-44 | 4563 (12.54%) | 2 (1-3) | 57.75% (56.31%, 59.17%) | 3.29(3.2, 3.38) | 4.12(3.92, 4.32) | 10.1(9.71, 10.47) | 6.02(5.4, 6.8) |
| 45-64 | 12831 (35.26%) | 3 (2-4) | 75.22% (74.46%, 75.96%) | 3.92(3.87, 3.98) | 4.07(3.97, 4.18) | 10.4(10.2, 10.6) | 8.5(8.1, 9) |
| 65-84 | 15691 (43.12%) | 3 (2-5) | 86.31% (85.76%, 86.84%) | 4.3(4.26, 4.35) | 4.25(4.16, 4.35) | 10.1(9.9, 10.2) | 13.5(13, 14) |
| 85-95 | 2085 (5.73%) | 4 (2-5) | 90.46% (89.12%, 91.64%) | 4.3(4.21, 4.46) | 3.87(3.64, 4.1) | 9.12(8.79, 9.45) | 20.8(19.1,22.6) |
| **No. of disorders** |  |  |  |
| 0 | 2669 (7.33%) | **-** | **-** | 2.53(2.44, 2.62) | 3.1(2.89, 3.29) | 7.56(7.21, 7.92) | 5.8(4.99, 6.81) |
| 1 | 5602 (15.39%) | **-** | **-** | 2.95(2.88, 3.02) | 3.3(3.16, 3.45) | 8.18(7.92, 8.45) | 7.27(6.6, 7.99) |
| 2 | 7410 (20.36%) | **-** | **-** | 3.54(3.48. 3.6) | 3.76(3.62, 3.89) | 9.2(8.95, 9.44) | 8.99(8.35, 9.67) |
| 3 | 7088 (19.84%) | **-** | **-** | 4(3.93, 4.07) | 4(3.88, 4.14) | 9.86(9.63, 10.1) | 11.1(10.3, 11.8) |
| 4 | 5477 (15.05%) | **-** | **-** | 4.5(4.42, 4.59) | 4.32(4.16, 4.48) | 10.57(10.3, 10.9) | 12.2(11.4, 13.2) |
| 5 | 3772 (10.37%) | **-** | **-** | 4.86(4.76, 4.97) | 4.86(4.64, 5.08) | 11.71(11.35, 12.1) | 13.7(12.6, 14.8) |
| 6 | 2218 (6.1%) | **-** | **-** | 5.23(5.09, 5.37) | 5.22(4.93, 5.52) | 12.54(12, 13.1) | 16.2(14.7, 17.8) |
| 7 | 1213 (3.33%) | **-** | **-** | 5.68(5.49, 5.87) | 5.82(5.41, 6.24) | 14.16(13.4, 14.92) | 17.6(15.5, 19.8) |
| >8 | 941 (2.59%) | **-** | **-** | 6.11(5.49, 5.87) | 6.74(6.22, 7.26) | 15.75(14.9, 16.6) | 21.8(19.2, 24.6) |
| **Admission type** |  |  |  |
| elective | 5939 (16.32%) | 3 (1-4) | 74.61% (73.49%, 75.70%) | 4.04(3.97, 4.11) | 3.3(3.17, 3.43) | 9.22(8.96, 9.49) | 2.63(2.24, 3.07) |
| non-elective | 30451 (83.68%) | 3 (2-4) | 77.79% (77.32%, 78.25%) | 3.98(3.94, 4.01) | 4.28(4.21 4.35) | 10.22(10.1, 10.34) | 12.6(12.2, 12.9) |