**Supplemental Table 4. Cyanotic Group Patient Characteristics and Data by Hematocrit Sub-group**

| **Variable** | **Level** | **Overall**  **(N=4909)** | | **Low (<36)**  **(N=983)** | | **Med (36 - 42)**  **(N=2004)** | | **High (>42)**  **(N=1922)** | | **P-value** | | **P-value Low vs. Med** | **P-value Med vs. High** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Patient Characteristics** | |  |  |  |  |  |  |  |  |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Age at surgery (days) | | 155 [10, 747] | | 168 [26, 463] | | 154 [12, 548.5] | | 145.5 [7, 879] | | 0.003 | 0.066 | | 0.033 |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Age group | Neonate | 1561 (31.8%) | | 255 (25.9%) | | 594 (29.6%) | | 712 (37.0%) | | 0.151 | 0.420 | | 0.188 |
| Infant | 1916 (39.0%) | | 469 (47.7%) | | 854 (42.6%) | | 593 (30.9%) | |  |  | |  |
| Child | 1432 (29.2%) | | 259 (26.4%) | | 556 (27.7%) | | 617 (32.1%) | |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Sex | Male | 2939 (59.9%) | | 588 (59.8%) | | 1228 (61.3%) | | 1123 (58.4%) | | 0.191 | 0.442 | | 0.069 |
| Female | 1970 (40.1%) | | 395 (40.2%) | | 776 (38.7%) | | 799 (41.6%) | |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Weight (kilograms) | | 6.1 [3.5, 10.8] | | 6.4 [3.7, 9.4] | | 6.1 [3.6, 9.8] | | 5.9 [3.4, 12.0] | | 0.060 | 0.169 | | 0.187 |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Gestational age (weeks) | | 39 [38, 39] | | 39 [37, 39] | | 39 [38, 39] | | 39 [38, 39] | | 0.646 | 0.360 | | 0.828 |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| **Preoperative Data** | |  |  |  |  |  |  |  |  |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Prematurity (<37 weeks completed gestation) | Missing | 49 (1.0%) | | 14 (1.4%) | | 14 (0.7%) | | 21 (1.1%) | | 0.233 | 0.163 | | 0.753 |
| No | 4260 (86.8%) | | 834 (84.8%) | | 1749 (87.3%) | | 1677 (87.3%) | |  |  | |  |
| Yes | 600 (12.2%) | | 135 (13.7%) | | 241 (12.0%) | | 224 (11.7%) | |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Mechanical ventilatory support | No | 4358 (88.8%) | | 861 (87.6%) | | 1801 (89.9%) | | 1696 (88.2%) | | 0.114 | 0.060 | | 0.102 |
| Yes | 551 (11.2%) | | 122 (12.4%) | | 203 (10.1%) | | 226 (11.8%) | |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Any syndrome | Missing | 6 (0.1%) | | 1 (0.1%) | | 2 (0.1%) | | 3 (0.2%) | | 0.332 | 0.885 | | 0.197 |
| No | 4000 (81.5%) | | 809 (82.3%) | | 1645 (82.1%) | | 1546 (80.4%) | |  |  | |  |
| Yes | 903 (18.4%) | | 173 (17.6%) | | 357 (17.8%) | | 373 (19.4%) | |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Non-cardiac congenital anomaly | Missing | 17 (0.4%) | | 4 (0.4%) | | 6 (0.3%) | | 7 (0.4%) | | 0.975 | 0.875 | | 0.834 |
| No | 3937 (80.2%) | | 787 (80.1%) | | 1611 (80.4%) | | 1539 (80.1%) | |  |  | |  |
| Yes | 955 (19.5%) | | 192 (19.5%) | | 387 (19.3%) | | 376 (19.6%) | |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Any chromosomal abnormality | Missing | 2 (0.04%) | | 0 (0.0%) | | 1 (0.1%) | | 1 (0.1%) | | 0.428 | 0.193 | | 0.610 |
| No | 4715 (96.1%) | | 938 (95.4%) | | 1931 (96.4%) | | 1846 (96.1%) | |  |  | |  |
| Yes | 192 (3.9%) | | 45 (4.6%) | | 72 (3.6%) | | 75 (3.9%) | |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Redo sternotomy | No | 2533 (51.6%) | | 519 (52.8%) | | 986 (49.2%) | | 1028 (53.5%) | | 0.019 | 0.065 | | 0.007 |
| Yes | 2376 (48.4%) | | 464 (47.2%) | | 1018 (50.8%) | | 894 (46.5%) | |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Shock, persistent at time of surgery | No | 4858 (99.0%) | | 972 (98.9%) | | 1987 (99.2%) | | 1899 (98.8%) | | 0.539 | 0.471 | | 0.277 |
| Yes | 51 (1.0%) | | 11 (1.1%) | | 17 (0.9%) | | 23 (1.2%) | |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Renal failure | No | 4855 (98.9%) | | 972 (98.9%) | | 1988 (99.2%) | | 1895 (98.6%) | | 0.190 | 0.384 | | 0.068 |
| Yes | 54 (1.1%) | | 11 (1.1%) | | 16 (0.8%) | | 27 (1.4%) | |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Neurologic deficit | No | 4663 (95.0%) | | 935 (95.1%) | | 1905 (95.1%) | | 1823 (94.9%) | | 0.935 | 0.946 | | 0.763 |
| Yes | 246 (5.0%) | | 48 (4.9%) | | 99 (4.9%) | | 99 (5.1%) | |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Any other pre-op factors | No | 3528 (71.9%) | | 714 (72.6%) | | 1411 (70.4%) | | 1403 (73.0%) | | 0.165 | 0.207 | | 0.072 |
| Yes | 1381 (28.1%) | | 269 (27.4%) | | 593 (29.6%) | | 519 (27.0%) | |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Congenital anomaly / Syndrome risk category | 0 | 4103 (83.6%) | | 822 (83.6%) | | 1690 (84.3%) | | 1591 (82.8%) | | 0.144 | 0.886 | | 0.093 |
| 1 | 166 (3.4%) | | 39 (4.0%) | | 70 (3.5%) | | 57 (3.0%) | |  |  | |  |
| 2 | 295 (6.0%) | | 58 (5.9%) | | 110 (5.5%) | | 127 (6.6%) | |  |  | |  |
| 3 | 226 (4.6%) | | 48 (4.9%) | | 93 (4.7%) | | 85 (4.4%) | |  |  | |  |
| 4 | 109 (2.2%) | | 15 (1.5%) | | 36 (1.8%) | | 58 (3.0%) | |  |  | |  |
| 5 | 10 (0.2%) | | 1 (0.1%) | | 5 (0.3%) | | 4 (0.2%) | |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| **Operative Data** |  |  |  |  |  |  |  |  |  |  |  | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| CPB time |  | 101 [71, 148] | | 100 [70, 153] | | 95.5 [67, 142] | | 108 [75, 152] | | <.001 | 0.011 | | <.001 |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Hematocrit post-protamine | | 38 [34, 42] | | 35 [32, 38] | | 38 [35, 41] | | 40 [36, 44] | | <.001 | <.001 | | <.001 |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| STAT Category | Missing | 29 (0.6%) | | 4 (0.4%) | | 6 (0.3%) | | 19 (1.0%) | | 0.007 | 0.940 | | 0.004 |
| 1 | 237 (4.8%) | | 46 (4.7%) | | 77 (3.8%) | | 114 (5.9%) | |  |  | |  |
| 2 | 2431 (49.5%) | | 499 (50.8%) | | 1060 (52.9%) | | 872 (45.4%) | |  |  | |  |
| 3 | 91 (1.9%) | | 27 (2.8%) | | 40 (2.0%) | | 24 (1.3%) | |  |  | |  |
| 4 | 856 (17.4%) | | 182 (18.5%) | | 340 (17.0%) | | 334 (17.4%) | |  |  | |  |
| 5 | 1265 (25.8%) | | 225 (22.9%) | | 481 (24.0%) | | 559 (29.1%) | |  |  | |  |

All tests treat the column variable as nominal. CPB = Cardiopulmonary Bypass; STAT = The Society of Thoracic Surgeons-European Association for Cardio-Thoracic Surgery. Data presented as count (percentage) or median [25th percentile, 75th percentile]. P-values are based on Pearson chi-square tests for all categorical row variables. P-values were calculated by comparing only non-missing row values. P-values are based on chi-square rank based group means score statistics for all continuous/ordinal row variables which is equivalent to Kruskal-Wallis tests. All tests treat the column variable as nominal.