Supplementary Table 1: Odds Ratios for Variables in Fully Adjusted Regression Analysis

| Variable                              | Odds Ratio | 95% CI      | P-value |
|---------------------------------------|------------|-------------|---------|
| Critical Events                       | 0.81       | 0.70 – 0.95 | 0.008   |
| Age                                   | 0.98       | 0.97 – 0.99 | < 0.001 |
| Female Sex                            | 0.99       | 0.88 – 1.10 | 0.786   |
| Hispanic Ethnicity                    | 0.84       | 0.70 – 1.01 | 0.062   |
| Race                                  |            |             |         |
| White                                 | 1.01       | 0.85 – 1.21 | 0.888   |
| Black                                 | 0.82       | 0.69 – 0.98 | 0.024   |
| Patient’s Severity of Illness (PRISM Score) | 1.14       | 1.13 – 1.15 | < 0.001 |
| ICU Severity of Illness (Mean PRISM Score) | 0.99       | 0.95 – 1.03 | 0.561   |
| Weekend and Shift (Reference: Weekday, Day) |        |             |         |
| Weekend, Day                          | 0.71       | 0.58 – 0.87 | 0.001   |
| Weekend, Night                        | 0.98       | 0.82 – 1.17 | 0.844   |
| Weekday, Night                        | 1.19       | 1.05 – 1.35 | 0.008   |
| ICU Census                            | 1.00       | 0.99 – 1.02 | 0.959   |
| Year                                  | 1.06       | 1.03 – 1.10 | < 0.001 |
| Season (Reference: Fall)              |            |             |         |
| Spring                                | 1.02       | 0.87 – 1.19 | 0.845   |
| Summer                                | 1.05       | 0.89 – 1.23 | 0.571   |
| Winter                                | 0.94       | 0.80 – 1.11 | 0.488   |
**Supplementary Table 2**: Pairwise comparison of critical events. Exposures were critical events in last six hours, and outcomes were recorded during the next six hours.

| Exposures                  | Only Mechanical Ventilation | Only Vasoactive Medications | Ventilation and Vasoactive Medications | Cardiac Arrest or Death | No Events | Total    |
|----------------------------|-----------------------------|-----------------------------|---------------------------------------|-------------------------|-----------|----------|
| Mechanical Ventilation     | 70                          | 25                          | 2                                     | 24                      | 24785     | 24909    |
| Vasoactive Medications     | 38                          | 17                          | 1                                     | 7                       | 13520     | 13583    |
| Cardiac Arrest or Death    | 13                          | 3                           | 0                                     | 5                       | 3923      | 3944     |
Supplementary Figure 1: A histogram depicting the distribution of critical events in the eighteen hours after an incident critical event. The graph depicts a uniform distribution of critical outcomes across the eighteen-hour period.