Supplemental Methods:

The following is an expanded description of NYSVAG simulation methodology. All patients who satisfy the medical indication for mechanical ventilation would undergo NYSVAG Step 1 and be excluded from receiving a ventilator if any exclusionary criteria were satisfied. Step 1 was not performed for this study because the number of such patients was negligible (eFigure 1).

Those patients not excluded by Step 1 and under consideration for the initiation of mechanical ventilation proceeded to Step 2 or the potential allocation of ventilators. This process is facilitated by calculating that patient’s SOFA score on the day of consideration. Individuals whose SOFA score is ≤ 7 receive the highest priority for a ventilator (Red), with any excess ventilators subsequently provided to individuals whose SOFA score are between 8-11 (Yellow). Patient’s whose SOFA score is > 11 (Blue) are classified as ineligible for a ventilator unless a surplus of ventilators exists. NYSVAG specify that in the event where there are more individuals of the same priority class (Red, Yellow, or Blue) than available ventilators (i.e. 4 patients triaged as Yellow with only 2 remaining ventilators available), randomization is used to assign which patients receive a ventilator. In this simulation study, however, every patient that was eligible for a ventilator (Red or Yellow) received a ventilator and any patient triaged as ineligible (Blue) did not receive a ventilator. This design was chosen to understand the performance of explicit triage criteria (SOFA cutoffs and ventilator time trials) independent from the number of available ventilators (requiring randomization and potentially obscuring inefficiencies). All ventilated patients (Red or Yellow) would maintain that ventilator until they were due to be reassessed (i.e. time trial) unless they were extubated, died, or placed onto ECMO. At the conclusion of that time trial patients who continue to require a ventilator undergo Step 3.

Patients are reassessed by Step 3 to determine if they will maintain their ventilator or if it will be reallocated to another patient. This reassessment requires the patient’s SOFA score to be recalculated and occurs on Day 2 of mechanical ventilation, Day 5, and every subsequent 2 days of mechanical ventilation. How the SOFA score prioritizes the patient (high – Red, intermediate – Yellow, or ineligible – Blue) depends on how long the patient has utilized the ventilator but generally a patient must demonstrate a continued decrease in their SOFA score on the day of evaluation to maintain their ventilator (Table 1). In this simulation study, any patient whose SOFA score on reassessment triaged them as Red or Yellow maintained their ventilator while anyone ineligible or Blue had their ventilator removed.

Patients exited the simulation when placed onto ECMO because (1) NYSVAG did include ECMO and (2) pulmonary component a SOFA score might be artificially low for patients on ECMO, and (3) institutional extubation practice patterns vary while patients are on ECMO.