**e-Figure 1. Sensitivity Analyses for Diagnosis of ARDS.** Horizontal bars represent the 95% confidence interval of the adjusted odds ratios for meeting criteria of ARDS or the specified modified endpoing for patients receiving pre-admission oral corticosteroids. The primary analysis is for meeting criteria for ARDS in the first 96 hours from ICU admission as presented in the paper. Mechanical ventilation restricts the outcome of ARDS to patients who met criteria for ARDS and were mechanically ventilated. The additional analyses presented include the adjustment for inhaled corticosteroids in the multivariable model; exclusion of patients with malignancy, hematopoietic stem cell transplant, or solid organ transplant; exclusion of patients with trauma; defining the outcome as meeting ARDS criteria on two or more consecutive days; and defining the outcome as combined endpoint of ARDS or death within 96 hours of ICU admission. The odds ratios are adjusted for age, gender, smoking status, diabetes mellitus, alcohol use, diagnosis of leukemia or lymphoma, history of hematopoietic stem cell transplant, history of solid organ transplant, malignant solid tumor, Acute Physiology and Chronic Health Evaluation (APACHE) II score, vasopressor receipt on the day of enrollment, pulmonary origin of sepsis, medical versus non-medical ICU, and pre-admission receipt of a T-cell inhibitor medication.



**e-Table 1. Sensitivity Analysis: Logistic Regression Model for ARDS and Mechanical Ventilation**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Odds Ratio** | **95% Confidence Interval** | ***p*** |
| Pre-Admission Oral Corticosteroids | 0.466 | 0.277 - 0.785 | 0.004 |
| Age (years) | 0.447 | 0.296 - 0.674 | 0.000 |
| APACHE II Score | 2.683 | 1.775 - 4.055 | <0.001 |
| Female Gender | 1.506 | 1.130 - 2.006 | 0.005 |
| Current Smoker | 1.186 | 0.861 - 1.634 | 0.297 |
| Diabetes | 1.006 | 0.734 - 1.379 | 0.970 |
| Alcohol Abuse | 1.646 | 1.088 - 2.491 | 0.018 |
| Leukemia or Lymphoma | 0.975 | 0.594 - 1.602 | 0.922 |
| Hematopoietic Stem Cell Transplant | 1.337 | 0.529 - 3.381 | 0.540 |
| Solid Organ Transplant | 0.915 | 0.421 - 1.988 | 0.822 |
| Solid Tumor | 1.123 | 0.771 - 1.636 | 0.546 |
| Vasopressor | 1.280 | 0.952 - 1.721 | 0.102 |
| Pulmonary Source of Sepsis | 3.355 | 2.491 - 4.520 | <0.001 |
| Medical ICU | 0.573 | 0.406 - 0.810 | 0.002 |
| T-cell Inhibitor Medication | 1.568 | 0.805 - 3.057 | 0.186 |

The odds ratios and confidence intervals presented for categorical variables are for the presence of the variable compared with its absence. The odds ratios and confidence intervals for continuous variables are the 75th percentile compared with the 25th percentile. The *p* value is the significance of the term or the term and its splines in the model for categorical and continuous variables, respectively.

**e-Table 2. Sensitivity Analysis: Logistic Regression Model for ARDS Controlling for Pre-Admission Inhaled Corticosteroid Receipt**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Odds Ratio** | **95% Confidence Interval** | ***p*** |
| Pre-Admission Oral Corticosteroids | 0.530 | 0.330 - 0.853 | 0.009 |
| Age (years) | 0.513 | 0.349 - 0.756 | 0.001 |
| APACHE II Score | 1.418 | 0.969 - 2.077 | <0.001 |
| Female Gender | 1.219 | 0.931 - 1.596 | 0.150 |
| Current Smoker | 1.104 | 0.814 - 1.497 | 0.526 |
| Diabetes | 0.941 | 0.698 - 1.268 | 0.687 |
| Alcohol Abuse | 1.378 | 0.927 - 2.048 | 0.113 |
| Leukemia or Lymphoma | 1.844 | 1.166 - 2.916 | 0.009 |
| Hematopoietic Stem Cell Transplant | 1.385 | 0.577 - 3.324 | 0.466 |
| Solid Organ Transplant | 1.037 | 0.505 - 2.132 | 0.921 |
| Solid Tumor | 1.147 | 0.805 - 1.636 | 0.447 |
| Vasopressor | 1.273 | 0.961 - 1.687 | 0.093 |
| Pulmonary Source of Sepsis | 3.669 | 2.779 - 4.844 | <0.001 |
| Medical ICU | 0.733 | 0.525 - 1.023 | 0.068 |
| T-cell Inhibitor Medication | 1.523 | 0.825 - 2.811 | 0.179 |
| Pre-Admission Inhaled Corticosteroids | 0.939 | 0.520 - 1.696 | 0.834 |

The odds ratios and confidence intervals presented for categorical variables are for the presence of the variable compared with its absence. The odds ratios and confidence intervals for continuous variables are the 75th percentile compared with the 25th percentile. The *p* value is the significance of the term or the term and its splines in the model for categorical and continuous variables, respectively.

**e-Table 3. Sensitivity Analysis: Logistic Regression Model for ARDS Excluding Patients with Malignancy, Hematopoietic Stem Cell Transplant, or Solid Organ Transplant**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Odds Ratio** | **95% Confidence Interval** | ***p*** |
| Pre-Admission Oral Corticosteroids | 0.439 | 0.206 – 0.939 | 0.034 |
| Age (years) | 0.523 | 0.316 – 0.867 | 0.009 |
| APACHE II Score | 1.438 | 0.888 - 2.325 | 0.001 |
| Female Gender | 1.209 | 0.861 - 1.697 | 0.272 |
| Current Smoker | 1.211 | 0.836 - 1.755 | 0.312 |
| Diabetes | 0.936 | 0.646 - 1.356 | 0.726 |
| Alcohol Abuse | 1.233 | 0.784 -1.939 | 0.364 |
| Vasopressor | 1.037 | 0.727 - 1.482 | 0.839 |
| Pulmonary Source of Sepsis | 3.716 | 2.624 – 5.263 | <0.001 |
| Medical ICU | 0.964 | 0.648 - 1.435 | 0.859 |
| T-cell Inhibitor Medication | 0.831 | 0.279 – 2.477 | 0.740 |

The odds ratios and confidence intervals presented for categorical variables are for the presence of the variable compared with its absence. The odds ratios and confidence intervals for continuous variables are the 75th percentile compared with the 25th percentile. The *p* value is the significance of the term or the term and its splines in the model for categorical and continuous variables, respectively.

**e-Table 4. Sensitivity Analysis: Logistic Regression Model for ARDS, Excluding Trauma Patients**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Odds Ratio** | **95% Confidence Interval** | ***p*** |
| Pre-Admission Oral Corticosteroids | 0.536 | 0.334 - 0.860 | 0.010 |
| Age (years) | 0.516 | 0.350 - 0.762 | 0.001 |
| APACHE II Score | 1.351 | 0.917 - 1.992 | 0.001 |
| Female Gender | 1.174 | 0.892 - 1.546 | 0.252 |
| Current Smoker | 1.116 | 0.815 - 1.527 | 0.494 |
| Diabetes | 0.928 | 0.687 - 1.254 | 0.627 |
| Alcohol Abuse | 1.386 | 0.917 - 2.096 | 0.122 |
| Leukemia or Lymphoma | 1.844 | 1.165 - 2.918 | 0.009 |
| Hematopoietic Stem Cell Transplant | 1.383 | 0.576 - 3.321 | 0.468 |
| Solid Organ Transplant | 1.055 | 0.514 - 2.163 | 0.885 |
| Solid Tumor | 1.148 | 0.803 - 1.641 | 0.449 |
| Vasopressor | 1.293 | 0.969 - 1.726 | 0.081 |
| Pulmonary Source of Sepsis | 3.735 | 2.812 - 4.960 | <0.001 |
| Medical ICU | 0.643 | 0.447 - 0.925 | 0.017 |
| T-cell Inhibitor Medication | 1.473 | 0.798 - 2.718 | 0.216 |

The odds ratios and confidence intervals presented for categorical variables are for the presence of the variable compared with its absence. The odds ratios and confidence intervals for continuous variables are the 75th percentile compared with the 25th percentile. The *p* value is the significance of the term or the term and its splines in the model for categorical and continuous variables, respectively.

**e-Table 5. Sensitivity Analysis: Logistic Regression Model for ARDS on Two Consecutive Days**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Odds Ratio** | **95% Confidence Interval** | ***p*** |
| Pre-Admission Oral Corticosteroids | 0.611 | 0.379 - 0.985 | 0.043 |
| Age (years) | 0.571 | 0.385 - 0.848 | 0.003 |
| APACHE II Score | 1.479 | 1.001 - 2.183 | 0.001 |
| Female Gender | 1.254 | 0.953 - 1.651 | 0.106 |
| Current Smoker | 1.059 | 0.777 - 1.444 | 0.716 |
| Diabetes | 0.927 | 0.684 - 1.257 | 0.627 |
| Alcohol Abuse | 1.712 | 1.148 - 2.553 | 0.008 |
| Leukemia or Lymphoma | 1.782 | 1.122 - 2.83 | 0.014 |
| Hematopoietic Stem Cell Transplant | 1.281 | 0.536 - 3.064 | 0.577 |
| Solid Organ Transplant | 0.968 | 0.463 - 2.021 | 0.930 |
| Solid Tumor | 1.205 | 0.842 - 1.726 | 0.308 |
| Vasopressor | 1.137 | 0.854 - 1.515 | 0.380 |
| Pulmonary Source of Sepsis | 3.915 | 2.945 - 5.206 | <0.001 |
| Medical ICU | 0.705 | 0.501 - 0.992 | 0.045 |
| T-cell Inhibitor Medication | 1.369 | 0.736 - 2.546 | 0.322 |

The odds ratios and confidence intervals presented for categorical variables are for the presence of the variable compared with its absence. The odds ratios and confidence intervals for continuous variables are the 75th percentile compared with the 25th percentile. The *p* value is the significance of the term or the term and its splines in the model for categorical and continuous variables, respectively.

**e-Table 6. Sensitivity Analysis: Logistic Regression Model for ARDS or Death within 96 Hours of ICU Admission**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Odds Ratio** | **95% Confidence Interval** | ***p*** |
| Pre-Admission Oral Corticosteroids | 0.619 | 0.392 - 0.979 | 0.040 |
| Age (years) | 0.490 | 0.334 - .0719 | <0.001 |
| APACHE II Score | 1.590 | 1.091 – 2.318 | <0.001 |
| Female Gender | 1.271 | 0.973 - 1.661 | 0.078 |
| Current Smoker | 1.113 | 0.823 - 1.506 | 0.486 |
| Diabetes | 0.879 | 0.655 - 1.180 | 0.391 |
| Alcohol Abuse | 1.389 | 0.934 -2.061 | 0.105 |
| Leukemia or Lymphoma | 1.998 | 1.263 – 3.162 | 0.003 |
| Hematopoietic Stem Cell Transplant | 1.423 | 0.581 – 3.486 | 0.441 |
| Solid Organ Transplant | 0.962 | 0.471 – 1.964 | 0.915 |
| Solid Tumor | 1.241 | 0.875 – 1.761 | 0.226 |
| Vasopressor | 1.375 | 1.041 – 1.815 | 0.025 |
| Pulmonary Source of Sepsis | 3.183 | 2.420 - 4.185 | <0.001 |
| Medical ICU | 0.870 | 0.626 – 1.209 | 0.406 |
| T-cell Inhibitor Medication | 1.324 | 0.720 – 2.439 | 0.367 |

The odds ratios and confidence intervals presented for categorical variables are for the presence of the variable compared with its absence. The odds ratios and confidence intervals for continuous variables are the 75th percentile compared with the 25th percentile. The *p* value is the significance of the term or the term and its splines in the model for categorical and continuous variables, respectively.

**e-Table 7. Sensitivity Analysis: Competing Risks Model for ARDS or Death within 96 Hours of ICU Admission**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Hazard Ratio** | **95% Confidence Interval** | ***p*** |
| Pre-Admission Oral Corticosteroids | 0.690 | 0.525 - 0.908 | 0.008 |
| Age (years) | 0.992 | 0.970 – 1.014 | 0.450 |
| Age’ (years) | 1.033 | 0.953 – 1.118 | 0.430 |
| Age’’ (years) | 0.589 | 0.325 – 1.070 | 0.082 |
| Age’’’ (years) | 5.160 | 1.463 – 18.201 | 0.011 |
| APACHE II Score | 1.083 | 1.016 – 1.154 | 0.014 |
| APACHE II Score’ | 0.847 | 0.628 – 1.141 | 0.270 |
| APACHE II Score’’ | 1.579 | 0.428 – 5.829 | 0.490 |
| APACHE II Score’’’ | 0.707 | 0.127 – 3.924 | 0.690 |
| Female Gender | 1.136 | 0.977 - 1.321 | 0.098 |
| Current Smoker | 1.058 | 0.889 - 1.258 | 0.530 |
| Diabetes | 0.968 | 0.810 – 1.157 | 0.720 |
| Alcohol Abuse | 1.211 | 0.980 – 1.496 | 0.076 |
| Leukemia or Lymphoma | 1.378 | 1.079 – 1.761 | 0.010 |
| Hematopoietic Stem Cell Transplant | 1.188 | 0.751 – 1.877 | 0.460 |
| Solid Organ Transplant | 1.035 | 0.697 – 1.537 | 0.860 |
| Solid Tumor | 1.100 | 0.900 – 1.345 | 0.350 |
| Vasopressor | 1.144 | 0.978 – 1.338 | 0.093 |
| Pulmonary Source of Sepsis | 2.237 | 1.889 – 2.650 | <0.001 |
| Medical ICU | 0.833 | 0.689 – 1.007 | 0.059 |
| T-cell Inhibitor Medication | 1.278 | 0.923 – 1.770 | 0.140 |

The hazard ratios and confidence intervals presented for categorical variables are for the presence of the variable compared with its absence. The hazard ratios and confidence intervals for the continuous variables of age and APACHE II are for 1 unit increments in years and score, respectively. Each of the splines for age and APACHE II are shown. The *p* values are for the significance of the term in the model.

**e-Table 8. Logistic Regression Model for ARDS Assessing Dose-Response Relationship**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Odds Ratio** | **95% Confidence Interval** | ***p*** |
| Pre-Admission Oral Corticosteroid Daily Dose (mg prednisone equivalents) | 0.530 | 0.325 - 0.865 | 0.020 |
| Age (years) | 0.509 | 0.345 - 0.750 | 0.001 |
| APACHE II Score | 1.414 | 0.965 - 2.072 | <0.001 |
| Female Gender | 1.213 | 0.927 - 1.588 | 0.160 |
| Current Smoker | 1.099 | 0.810 - 1.491 | 0.546 |
| Diabetes | 0.943 | 0.700 - 1.271 | 0.700 |
| Alcohol Abuse | 1.392 | 0.936 - 2.070 | 0.102 |
| Leukemia or Lymphoma | 1.950 | 1.224 - 3.108 | 0.005 |
| Hematopoietic Stem Cell Transplant | 1.415 | 0.577 - 3.472 | 0.448 |
| Solid Organ Transplant | 0.807 | 0.395 - 1.648 | 0.556 |
| Solid Tumor | 1.136 | 0.797 - 1.619 | 0.480 |
| Vasopressor | 1.300 | 0.980 - 1.724 | 0.069 |
| Pulmonary Source of Sepsis | 3.691 | 2.793 - 4.877 | <0.001 |
| Medical ICU | 0.733 | 0.525 - 1.023 | 0.068 |
| T-cell Inhibitor Medication | 1.540 | 0.834 - 2.843 | 0.168 |

The odds ratios and confidence intervals presented for categorical variables are for the presence of the variable compared with its absence. The odds ratios and confidence intervals for continuous variables are the 75th percentile compared with the 25th percentile. The *p* value is the significance of the term or the term and its splines in the model for categorical and continuous variables, respectively.

**e-Table 9. Logistic Regression Model for In-Hospital Mortality**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Odds Ratio** | **95% Confidence Interval** | ***p*** |
| Pre-Admission Oral Corticosteroids | 1.409 | 0.870 - 2.282 | 0.164 |
| Age (years) | 0.925 | 0.600 - 1.427 | 0.069 |
| APACHE II Score | 1.806 | 1.158 - 2.816 | <0.001 |
| Female Gender | 1.047 | 0.770 - 1.424 | 0.770 |
| Current Smoker | 0.992 | 0.695 - 1.417 | 0.966 |
| Diabetes | 1.085 | 0.777 - 1.516 | 0.633 |
| Alcohol Abuse | 0.966 | 0.599 - 1.557 | 0.886 |
| Leukemia or Lymphoma | 3.104 | 1.957 - 4.922 | <0.001 |
| Hematopoietic Stem Cell Transplant | 1.091 | 0.459 - 2.591 | 0.844 |
| Solid Organ Transplant | 0.568 | 0.246 - 1.312 | 0.186 |
| Solid Tumor | 1.335 | 0.907 - 1.966 | 0.143 |
| Vasopressor | 1.427 | 1.037 - 1.963 | 0.029 |
| Pulmonary Source of Sepsis | 1.462 | 1.071 - 1.996 | 0.017 |
| Medical ICU | 1.296 | 0.870 - 1.931 | 0.203 |
| T-cell Inhibitor Medication | 1.167 | 0.598 - 2.278 | 0.651 |

The odds ratios and confidence intervals presented for categorical variables are for the presence of the variable compared with its absence. The odds ratios and confidence intervals for continuous variables are the 75th percentile compared with the 25th percentile. The *p* value is the significance of the term or the term and its splines in the model for categorical and continuous variables, respectively.

**e-Table 10. Ordinal Logistic Regression Model for ICU Length of Stay**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Odds Ratio** | **95% Confidence Interval** | ***p*** |
| Pre-Admission Oral Corticosteroids | 0.904 | 0.631 - 1.297 | 0.585 |
| Age (years) | 0.814 | 0.600 - 1.104 | 0.025 |
| APACHE II Score | 2.068 | 1.524 - 2.808 | <0.001 |
| Female Gender | 0.912 | 0.736 - 1.129 | 0.396 |
| Current Smoker | 0.943 | 0.740 - 1.203 | 0.639 |
| Diabetes | 0.873 | 0.688 - 1.106 | 0.261 |
| Alcohol Abuse | 1.280 | 0.929 - 1.762 | 0.131 |
| Leukemia or Lymphoma | 0.645 | 0.448 - 0.930 | 0.019 |
| Hematopoietic Stem Cell Transplant | 2.166 | 1.090 - 4.303 | 0.027 |
| Solid Organ Transplant | 0.802 | 0.448 - 1.435 | 0.457 |
| Solid Tumor | 0.665 | 0.500 - 0.884 | 0.005 |
| Vasopressor | 1.174 | 0.941 - 1.465 | 0.156 |
| Pulmonary Source of Sepsis | 1.228 | 0.988 - 1.526 | 0.064 |
| Medical ICU | 0.310 | 0.236 - 0.407 | <0.001 |
| T-cell Inhibitor Medication | 0.914 | 0.571 - 1.463 | 0.708 |

The odds ratios and confidence intervals presented for categorical variables are for the presence of the variable compared with its absence. The odds ratios and confidence intervals for continuous variables are the 75th percentile compared with the 25th percentile. The *p* value is the significance of the term or the term and its splines in the model for categorical and continuous variables, respectively.

**e-Table 11. Ordinal Logistic Regression Model for Ventilator-Free Days**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Odds Ratio** | **95% Confidence Interval** | ***p*** |
| Pre-Admission Oral Corticosteroids | 1.057 | 0.711 - 1.572 | 0.783 |
| Age (years) | 1.273 | 0.931 - 1.740 | 0.541 |
| APACHE II Score | 0.328 | 0.239 - 0.452 | <0.001 |
| Female Gender | 0.889 | 0.712 - 1.110 | 0.298 |
| Current Smoker | 0.927 | 0.723 - 1.188 | 0.547 |
| Diabetes | 1.115 | 0.871 - 1.427 | 0.389 |
| Alcohol Abuse | 0.840 | 0.610 - 1.156 | 0.285 |
| Leukemia or Lymphoma | 0.708 | 0.467 - 1.072 | 0.103 |
| Hematopoietic Stem Cell Transplant | 0.541 | 0.249 - 1.173 | 0.119 |
| Solid Organ Transplant | 1.640 | 0.886 - 3.035 | 0.115 |
| Solid Tumor | 0.955 | 0.711 - 1.283 | 0.760 |
| Vasopressor | 0.874 | 0.695 - 1.100 | 0.252 |
| Pulmonary Source of Sepsis | 0.471 | 0.375 - 0.591 | <0.001 |
| Medical ICU | 2.183 | 1.676 - 2.845 | <0.001 |
| T-cell Inhibitor Medication | 1.034 | 0.611 - 1.750 | 0.901 |

The odds ratios and confidence intervals presented for categorical variables are for the presence of the variable compared with its absence. The odds ratios and confidence intervals for continuous variables are the 75th percentile compared with the 25th percentile. The *p* value is the significance of the term or the term and its splines in the model for categorical and continuous variables, respectively.