

**Supplementary Table 4. Logistic regression analyses of the risk factors for critical illness in patients with hospital-acquired COVID-19 using SOFA subscores**

| Variable                                      | Univariable      |         | Multivariable             |         |
|---|------------------|---------|---------------------------|---------|
|   | OR (95% CI)      | p value | OR (95% CI) <sup>a)</sup> | p value |
| Age   | 1.01 (0.99–1.03) | 0.471   |                           |         |
| Sex, male                                     | 0.65 (0.30–1.40) | 0.269   |                           |         |
| Body mass index                               | 0.91 (0.83–0.99) | 0.035   |                           |         |
| <b>Comorbidity</b>                            |                  |         |                           |         |
| Respiratory disease                           | 3.26 (1.30–8.17) | 0.012   |                           |         |
| Cardiovascular disease                        | 1.65 (0.74–3.68) | 0.217   | 5.04 (1.49–18.30)         | 0.010   |
| Hypertension                                  | 0.77 (0.37–1.62) | 0.488   | 0.35 (0.11–1.01)          | 0.061   |
| Diabetes                                      | 0.64 (0.28–1.44) | 0.279   |                           |         |
| Chronic liver disease                         | 2.29 (0.81–6.50) | 0.118   |                           |         |
| Chronic kidney disease                        | 2.52 (1.10–5.76) | 0.028   |                           |         |
| Connective tissue disease                     | 1.07 (0.34–3.39) | 0.909   |                           |         |
| Solid malignancy                              | 1.60 (0.76–3.38) | 0.216   |                           |         |
| Hematologic malignancy                        | 1.51 (0.56–4.08) | 0.419   |                           |         |
| Immunocompromised                             | 2.17 (1.05–4.46) | 0.036   | 4.14 (1.43–13.31)         | 0.012   |
| Abnormal white blood cell count <sup>b)</sup> | 3.38 (1.60–7.12) | 0.001   | 2.85 (0.92–7.64)          | 0.075   |
| Abnormal heart rate <sup>c)</sup>             | 2.76 (1.33–5.72) | 0.006   |                           |         |
| Abnormal body temperature <sup>d)</sup>       | 1.08 (0.48–2.19) | 0.953   |                           |         |
| <b>SOFA score</b>                             |                  |         |                           |         |
| Pulmonary                                     | 3.63 (2.24–5.87) | <0.001  | 3.57 (1.94–7.35)          | <0.001  |
| Cardiovascular                                | 1.92 (1.41–2.61) | <0.001  | 2.05 (1.38–3.21)          | 0.001   |
| Coagulation                                   | 1.64 (1.18–2.29) | 0.003   |                           |         |
| Liver   | 1.32 (0.89–1.97) | 0.169   |                           |         |
| Central nervous system                        | 1.40 (0.97–2.04) | 0.076   |                           |         |
| Renal   | 1.43 (0.86–2.38) | 0.168   |                           |         |
| CFS   | 2.99 (1.98–4.51) | <0.001  | 3.24 (1.95–5.99)          | <0.001  |
| Dexamethasone use <sup>e)</sup>               | 2.29 (0.81–6.50) | 0.118   |                           |         |
| Remdesivir use <sup>e)</sup>                  | 1.06 (0.52–2.15) | 0.882   |                           |         |
| Former antibiotics                            | 3.06 (1.13–8.29) | 0.028   |                           |         |

OR, odds ratio; CI, confidence interval; SOFA, sequential organ failure assessment; CFS, clinical frailty scale.

<sup>a)</sup>Stepwise selection for age, sex, body mass index, respiratory disease, cardiovascular disease, hypertension, diabetes, chronic liver disease, chronic kidney disease, connective tissue disease, solid malignancy, hematologic malignancy, immunocompromised status, white blood cell count, heart rate, body temperature, pulmonary SOFA subscore, cardiovascular SOFA subscore, liver SOFA subscore, coagulation SOFA subscore, renal SOFA subscore, central nervous system SOFA subscore, CFS, the use of dexamethasone, remdesivir before progression to critical illness, and former antibiotics use was conducted and cardiovascular disease, hypertension, immunocompromised, abnormal white blood cell count, pulmonary SOFA subscore, cardiovascular SOFA subscore and clinical frailty scale were included in the final model; Hosmer–Lemeshow test yielded a nonsignificant *p* value of 0.557.

<sup>b)</sup>Abnormal WBC was defined as outside the range of 4,500–11,000/mL.

<sup>c)</sup>Abnormal heart rate was defined as outside the range of 60–100 beats per minute.

<sup>d)</sup>Abnormal body temperature was defined as outside the range of 36.5–37.3°C.

<sup>e)</sup>Days from COVID-19 diagnosis to critical illness.