

**Table S1.** Baseline characteristics of the Cohort I.

| <b>Characteristic</b>                          | <b>Sixth People's<br/>Hospital (n=598)</b> | <b>Tenth People's<br/>Hospital (n=120)</b> | <b>Shuguang<br/>Hospital (n=97)</b> | <b>p</b> |
|--|--|--|-------------------------------------|----------|
| CR-GNB carrier (%)                             | 55 (9.2)                                   | 32 (26.7)                                  | 11 (11.3)                           | <0.001   |
| Female (%)                                     | 230 (38.5)                                 | 42 (35.0)                                  | 40 (41.2)                           | 0.633    |
| Age (mean (SD))                                | 65.2 (17.2)                                | 65.5 (15.0)                                | 71.5 (15.1)                         | 0.002    |
| APACHE.II (median [IQR])                       | 12 [10, 15]                                | 10 [7, 16]                                 | 13 [10, 20]                         | <0.001   |
| SOFA (median [IQR])                            | 3 [2, 4]                                   | 3 [2, 7.25]                                | 4 [3, 7]                            | 0.004    |
| Department (%)                                 |  |  |                                     | <0.001   |
| surgical                                       | 465 (77.8)                                 | 91 (75.8)                                  | 1 (1.0)                             |          |
| medical  | 6 (1.0)                                    | 23 (19.2)                                  | 7 (7.2)                             |          |
| emergency                                      | 127 (21.2)                                 | 6 (5.0)                                    | 89 (91.8)                           |          |
| <b>Variables</b>                               |  |  |                                     |          |
| Neurological disease (%)                       | 41 (6.9)                                   | 38 (31.7)                                  | 9 (9.3)                             | <0.001   |
| High-risk departments history (%) <sup>a</sup> | 525 (87.8)                                 | 20 (16.7)                                  | 15 (15.5)                           | <0.001   |
| LOS before ICU admission $\geq$ 14 (%)         | 50 (8.4)                                   | 19 (15.8)                                  | 5 (5.2)                             | 0.012    |
| Previous ICU admission (%) <sup>b</sup>        | 46 (7.7)                                   | 9 (7.5)                                    | 9 (9.3)                             | 0.855    |
| Invasive mechanical ventilation (%)            | 571 (95.5)                                 | 64 (53.3)                                  | 14 (14.4)                           | <0.001   |
| Gastrointestinal tube (%)                      | 70 (11.7)                                  | 98 (81.7)                                  | 39 (40.2)                           | <0.001   |
| Carbapenem usage(%) <sup>c</sup>               | 92 (15.4)                                  | 17 (14.2)                                  | 9 (9.3)                             | 0.283    |

CR-GNB, Carbapenem-resistant Gram-negative bacteria; APACHE, acute physiology and chronic health evaluation; SOFA, sequential organ failure assessment; LOS, length of stay; ICU, intensive care unit.

<sup>a</sup> Within last month prior to ICU admission.

<sup>b</sup> Administration for more than 3 days within last 2 months prior to ICU admission.

<sup>c</sup> Only intravenous administration of antibiotics in patients is included.

### **Figure legends**

**Fig. S1** Area under the receiver operating characteristic curve (AUC) values for the prediction of CR-GNB carriage upon ICU admission in Sixth People's Hospital (A), Tenth People's Hospital (B) and Shuguang Hospital (C). Calibration curve analysis in Sixth People's Hospital (D), Tenth People's Hospital (E) and Shuguang Hospital (F). CR-GNB: carbapenem-resistant gram-negative bacteria; ICU: intensive care unit.