| Indicators | | | All included studies | | | | | | | | High risk patients | | C3G-resistant Enterobacterales | | carbapenem-resistant Enterobacterales | | methicillin-resistant S. aureus | | carbapenem-resistant A.baumanii | | vancomycin-resistant Enterococci | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | n studies | exposed resistant | total resistant | exposed susceptible | total suscep | median OR | q25\_or | q75\_or | n studies | median OR | n studies | median OR | n studies | median OR | n studies | median OR | n studies | median OR | n studies | median OR |
| Antibiotic exposure | Prior antibiotic exposure, specific choice | Beta-lactams | 23 | 1566 | 4022 | 1404 | 8671 | 3.69 | 2.41 | 5.88 | 7 | 3.68 | 5 | 3.68 | 4 | 13.56 | 2 | 6.26 | 3 | 4.07 | 0 | NA |
|  | Carbapenems | 60 | 3661 | 10423 | 2531 | 22803 | 5.70 | 3.81 | 9.57 | 20 | 4.13 | 13 | 3.73 | 26 | 8.33 | 1 | 14.95 | 5 | 11.40 | 3 | 9.25 |
|  | Cephems | 44 | 3006 | 11492 | 2873 | 25037 | 3.37 | 2.42 | 5.84 | 15 | 4.04 | 20 | 3.05 | 13 | 3.45 | 0 | NA | 2 | 2.71 | 1 | 4.73 |
|  | Fluoroquinolones | 50 | 1797 | 8321 | 1826 | 18939 | 3.78 | 2.77 | 7.44 | 16 | 3.29 | 18 | 3.44 | 14 | 3.39 | 4 | 9.71 | 2 | 11.00 | 1 | 2.77 |
|  | Glycopeptides/  oxazolidinones | 31 | 1049 | 4495 | 660 | 8310 | 5.21 | 3.51 | 10.06 | 10 | 4.01 | 3 | 4.46 | 11 | 5.32 | 3 | 5.77 | 1 | 4.60 | 6 | 11.38 |
|  | Tigecycline | 13 | 379 | 2353 | 151 | 5684 | 6.75 | 4.15 | 9.62 | 3 | 3.12 | 1 | 4.30 | 9 | 9.59 | 0 | NA | 0 | NA | 0 | NA |
|  | Other classes | 8 | 257 | 883 | 163 | 1156 | 3.71 | 1.90 | 8.19 | 1 | 2.54 | 2 | 0.00 | 1 | 15.65 | 0 | NA | 0 | NA | 1 | 4.14 |
|  | Prior antibiotic exposure, non specific |  | 125 | 17042 | 48755 | 22826 | 111634 | 3.41 | 1.86 | 6.03 | 39 | 3.57 | 43 | 3.00 | 23 | 5.31 | 14 | 3.51 | 8 | 8.15 | 9 | 5.25 |
|  | Inappropriate empirical antibiotic treatment | | 37 | 2232 | 4878 | 993 | 9611 | 12.60 | 4.46 | 43.15 | 13 | 18.89 | 17 | 8.19 | 7 | 29.09 | 4 | 9.38 | 1 | 50.60 | 2 | 3.58 |
|  | Prior corticosteroid use |  | 16 | 754 | 2078 | 1201 | 5625 | 2.20 | 1.69 | 3.62 | 5 | 2.05 | 1 | NA | 6 | 2.94 | 0 | NA | 0 | NA | 1 | 2.46 |
|  | Appropriate empirical antibiotic choice |  | 11 | 1160 | 2146 | 2433 | 3038 | 0.10 | 0.03 | 0.43 | 2 | 0.11 | 4 | 0.07 | 1 | 47.84 | 3 | 0.04 | 1 | 0.55 | 0 | NA |
|  | Prior antibiotic exposure, duration |  | 1 | 123 | 277 | 131 | 400 | 1.64 | 1.64 | 1.64 | 0 | NA | 1 | 1.64 | 0 | NA | 0 | NA | 0 | NA | 0 | NA |
| Biomedical results | Low blood values |  | 26 | 1648 | 3223 | 4651 | 8971 | 2.97 | 1.86 | 5.32 | 16 | 3.07 | 6 | 1.83 | 7 | 4.21 | 0 | NA | 1 | 4.40 | 3 | 6.72 |
| Clinical presentation | Clinical severity |  | 35 | 2745 | 6634 | 2521 | 11921 | 2.98 | 1.65 | 5.34 | 9 | 3.92 | 7 | 2.30 | 10 | 5.00 | 5 | 2.46 | 3 | 3.42 | 1 | 3.27 |
|  | Clinical presentation, other than infection site | | 10 | 689 | 1380 | 1230 | 2974 | 2.50 | 1.44 | 3.91 | 4 | 2.45 | 3 | 2.27 | 3 | 3.39 | 1 | 3.80 | 0 | NA | 0 | NA |
|  | Preterm birth/low birth weight |  | 5 | 326 | 1041 | 427 | 1394 | 3.58 | 1.10 | 5.47 | 3 | 5.07 | 0 | NA | 1 | 0.52 | 0 | NA | 1 | 9.45 | 0 | NA |
| Comorbidities | Metabolic/liver/kidney/urological |  | 59 | 4571 | 15458 | 21154 | 116409 | 2.39 | 1.53 | 3.63 | 11 | 3.18 | 19 | 2.06 | 14 | 2.86 | 8 | 3.10 | 4 | 2.79 | 3 | 2.79 |
|  | Cancer/hematologic |  | 50 | 8574 | 56149 | 12115 | 73268 | 1.11 | 0.42 | 2.80 | 14 | 1.15 | 13 | 1.39 | 10 | 0.46 | 6 | 0.75 | 3 | 0.55 | 8 | 2.48 |
|  | Cognitive/auto-immune/other |  | 37 | 3087 | 16116 | 7166 | 112718 | 1.96 | 0.61 | 3.22 | 6 | 2.09 | 12 | 2.11 | 8 | 2.69 | 4 | 0.74 | 3 | 1.65 | 5 | 1.73 |
|  | Cardiovascular |  | 22 | 14389 | 53739 | 22135 | 162537 | 3.03 | 1.76 | 4.47 | 1 | 7.36 | 5 | 1.80 | 8 | 4.47 | 6 | 3.29 | 0 | NA | 0 | NA |
|  | Respiratory |  | 4 | 48 | 406 | 59 | 917 | 4.99 | 3.28 | Inf | 0 | NA | 0 | NA | 1 | 3.31 | 2 | Inf | 0 | NA | 0 | NA |
|  | High comorbidity score (Charlson >2; Elixhauser >13) | | 2 | 71 | 272 | 439 | 1277 | 1.76 | 1.38 | 2.14 | 0 | NA | 1 | 2.52 | 0 | NA | 0 | NA | 0 | NA | 0 | NA |
|  | Underweight/malnutrition |  | 2 | 384 | 762 | 56 | 168 | 1.96 | 1.91 | 2.67 | 1 | 1.91 | 2 | 1.96 | 0 | NA | 0 | NA | 0 | NA | 0 | NA |
| Demographics | Male sex |  | 36 | 37630 | 64512 | 111222 | 231896 | 1.71 | 1.35 | 2.44 | 7 | 1.71 | 16 | 1.56 | 8 | 2.10 | 2 | 1.80 | 2 | 2.98 | 1 | 0.36 |
|  | Older age (cutoffs >/= 60 years) |  | 9 | 9881 | 47747 | 9751 | 53132 | 1.54 | 0.76 | 1.81 | 0 | NA | 1 | 0.70 | 1 | 2.20 | 4 | 1.34 | 1 | 1.84 | 0 | NA |
|  | Young age (cutoffs </= 5 years) |  | 6 | 156 | 2157 | 519 | 4322 | 0.95 | 0.51 | 0.95 | 2 | 0.38 | 1 | 5.68 | 0 | NA | 2 | 0.95 | 0 | NA | 1 | 0.26 |
|  | Geography |  | 4 | 93284 | 323791 | 124824 | 423356 | 1.00 | 0.83 | 1.33 | 1 | 1.35 | 1 | 1.31 | 0 | NA | 1 | 0.91 | 0 | NA | 0 | NA |
|  | Ethnicity |  | 3 | 137 | 977 | 538 | 4024 | 4.96 | 2.53 | 6.02 | 0 | NA | 1 | 4.11 | 1 | 8.74 | 0 | NA | 0 | NA | 0 | NA |
| Healthcare exposure | Prior hospitalisation |  | 90 | 62195 | 204212 | 69617 | 288911 | 2.74 | 1.49 | 4.04 | 21 | 3.00 | 19 | 3.00 | 21 | 2.60 | 15 | 3.08 | 3 | 2.91 | 3 | 3.84 |
|  | Prior ICU stay |  | 69 | 6459 | 13896 | 16457 | 56231 | 3.16 | 1.83 | 7.87 | 14 | 2.19 | 15 | 2.74 | 22 | 5.73 | 4 | 1.30 | 5 | 6.54 | 2 | 3.23 |
|  | Hospital-acquired |  | 41 | 4928 | 8661 | 10296 | 42568 | 3.00 | 2.01 | 7.39 | 10 | 3.07 | 16 | 3.00 | 6 | NA | 5 | 3.28 | 2 | 2.48 | 0 | NA |
|  | Community-acquired |  | 29 | 4627 | 17240 | 26575 | 59513 | 0.35 | 0.22 | 0.60 | 4 | 0.29 | 9 | 0.34 | 2 | 0.59 | 10 | 0.31 | 0 | NA | 1 | Inf |
|  | Healthcare associated, other than hospital-acquired or non specified if hospital | | 21 | 2765 | 4601 | 10714 | 35150 | 2.93 | 2.16 | 6.59 | 4 | 3.13 | 11 | 2.80 | 2 | 11.46 | 4 | 2.50 | 1 | 10.10 | 0 | NA |
|  | Long-term care facility |  | 14 | 749 | 2688 | 631 | 5963 | 4.84 | 4.30 | 6.26 | 1 | 11.14 | 8 | 5.56 | 1 | NA | 2 | 3.34 | 0 | NA | 0 | NA |
| Invasive procedures | Gastrointestinal/urinary tubes or drains | | 72 | 7587 | 17242 | 9319 | 39802 | 3.37 | 2.19 | 5.60 | 17 | 3.10 | 23 | 2.92 | 16 | 4.80 | 8 | 2.17 | 4 | 3.09 | 3 | 3.59 |
|  | Airway/respiratory procedures |  | 55 | 4924 | 15162 | 6515 | 41750 | 4.21 | 2.08 | 7.35 | 12 | 5.88 | 9 | 1.49 | 22 | 5.99 | 3 | 2.07 | 5 | 4.60 | 5 | 2.73 |
|  | Surgery / Invasive procedure |  | 44 | 3045 | 10207 | 3577 | 18920 | 2.86 | 1.94 | 5.04 | 11 | 2.82 | 13 | 2.33 | 14 | 3.57 | 7 | 3.17 | 1 | 2.55 | 3 | 0.36 |
|  | Central venous access/dialysis |  | 31 | 7804 | 49503 | 9296 | 58092 | 4.03 | 2.26 | 6.30 | 2 | 4.03 | 5 | 2.84 | 10 | 7.87 | 5 | 0.88 | 4 | 3.86 | 2 | 4.38 |
|  | Internal device / implant |  | 27 | 4219 | 9505 | 3157 | 12956 | 2.97 | 2.34 | 7.80 | 2 | 2.63 | 8 | 2.60 | 7 | 9.00 | 5 | 3.72 | 1 | 3.17 | 3 | 0.42 |
|  | Transplant |  | 25 | 1469 | 49142 | 1805 | 56252 | 3.88 | 1.54 | 7.76 | 6 | 1.89 | 6 | 4.20 | 7 | 5.52 | 3 | 0.81 | 2 | Inf | 2 | 9.88 |
|  | Prior IV therapy |  | 10 | 578 | 932 | 556 | 2017 | 2.32 | 0.28 | 3.66 | 1 | 2.32 | 3 | 2.09 | 2 | 10.89 | 1 | 4.32 | 1 | 0.16 | 0 | NA |
|  | Blood transfusion |  | 4 | 141 | 298 | 350 | 1167 | 2.23 | 2.11 | 2.45 | 1 | 2.71 | 1 | 2.71 | 2 | 2.23 | 0 | NA | 0 | NA | 0 | NA |
| Other | Other |  | 114 | 31106 | 169002 | 74626 | 336341 | 2.70 | 0.60 | 4.67 | 32 | 3.38 | 32 | 2.89 | 26 | 3.13 | 20 | 1.70 | 3 | 0.81 | 7 | 1.60 |
| Patient outcomes | Patient outcomes, mortality |  | 76 | 5710 | 17036 | 5796 | 41130 | 3.25 | 2.16 | 6.85 | 23 | 3.42 | 12 | 2.70 | 25 | 6.01 | 8 | 2.32 | 6 | 4.20 | 3 | 2.30 |
|  | Patient outcomes, cure |  | 6 | 498 | 779 | 1869 | 1803 | 0.23 | 0.17 | 0.43 | 2 | 0.39 | 0 | NA | 2 | 0.22 | 0 | NA | 0 | NA | 1 | 0.63 |
|  | Patient outcomes, complications |  | 4 | 108 | 435 | 104 | 1280 | 4.67 | 2.60 | 5.02 | 4 | 4.67 | 1 | 2.60 | 1 | 5.02 | 1 | 9.23 | 0 | NA | 0 | NA |
|  | Patient outcomes, treatment failure |  | 4 | 295 | 452 | 552 | 1306 | 3.20 | 2.26 | 4.60 | 1 | 2.49 | 1 | 2.49 | 0 | NA | 0 | NA | 0 | NA | 0 | NA |
|  | Patient outcomes, duration of hospitalisation or treatment | | 2 | 87 | 350 | 1199 | 11519 | 1.87 | 1.31 | 2.42 | 0 | NA | 0 | NA | 1 | 2.98 | 0 | NA | 1 | 0.76 | 0 | NA |
| Primary/specific infection site | Respiratory tract/pulmonary |  | 37 | 15343 | 49461 | 13420 | 60301 | 3.57 | 2.34 | 5.30 | 12 | 4.04 | 5 | 2.59 | 15 | 4.58 | 3 | 2.42 | 3 | 4.18 | 1 | 5.36 |
|  | Mixed/unspecified site |  | 21 | 2157 | 8669 | 24682 | 91295 | 1.27 | 0.46 | 2.44 | 4 | 0.64 | 6 | 1.71 | 5 | 0.46 | 3 | 1.72 | 2 | 0.16 | 1 | 0.98 |
|  | Intra-abdominal/hepatobiliary |  | 20 | 1307 | 4389 | 6717 | 33837 | 1.75 | 0.61 | 2.79 | 3 | 2.68 | 8 | 0.86 | 3 | 0.60 | 0 | NA | 0 | NA | 3 | 1.53 |
|  | Urinary tract |  | 16 | 567 | 3174 | 1150 | 6563 | 1.21 | 0.30 | 2.43 | 2 | 6.64 | 7 | 2.57 | 2 | 0.64 | 1 | 1.75 | 1 | 0.00 | 1 | 0.18 |
|  | Skin/soft tissue |  | 9 | 8819 | 46161 | 8119 | 50513 | 2.07 | 1.75 | 2.88 | 2 | 12.24 | 2 | 13.09 | 2 | 2.00 | 3 | 1.21 | 0 | NA | 0 | NA |
|  | Bone/joint |  | 5 | 197 | 1309 | 289 | 1714 | 2.36 | 0.91 | 2.98 | 0 | NA | 0 | NA | 0 | NA | 3 | 1.08 | 0 | NA | 1 | 3.12 |
|  | Endocarditis |  | 3 | 4503 | 44970 | 6584 | 48038 | 0.70 | 0.58 | 1.79 | 0 | NA | 0 | NA | 0 | NA | 3 | 0.70 | 0 | NA | 0 | NA |
|  | Mucosal barrier injury |  | 1 | 42 | 77 | 52 | 167 | 2.65 | 2.65 | 2.65 | 1 | 2.65 | 0 | NA | 1 | 2.65 | 0 | NA | 0 | NA | 0 | NA |
| Prior colonization or infection | Prior colonization or infection |  | 28 | 1276 | 5880 | 3019 | 38251 | 4.36 | 2.59 | 10.63 | 3 | 3.14 | 9 | 7.10 | 5 | 6.56 | 4 | 3.28 | 2 | Inf | 4 | 3.21 |