|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Supplementary Table 4** Correlation between antibiotic use and antibiotic resistance in the inter-ward analysis | | | | | | |
| **Antibiotic use** | **Resistance** | **Bacteria** | **AUD** | | **DOT** | |
|  |  |  | **ρ** | **P** | **ρ** | **P** |
| Piperacillin/tazobactam | Piperacillin/tazobactam | *Escherichia coli* | 0.544 | **0.009\*\*** | 0.551 | **0.008\*\*** |
|  |  | *Klebsiella pneumoniae* | 0.498 | **0.018\*** | 0.487 | **0.021\*** |
|  |  | *Serratia marcescens* | 0.185 | 0.423 | 0.148 | 0.523 |
|  |  | *Enterobacter cloacae* | -0.063 | 0.781 | -0.113 | 0.616 |
|  |  | *Pseudomonas aeruginosa* | 0.728 | **<0.001\*\*\*** | 0.675 | **<0.001\*\*\*** |
| Third-generation cephalosporins | Cefotaxime | *Escherichia coli* | -0.193 | 0.391 | -0.194 | 0.388 |
|  |  | *Klebsiella pneumoniae* | 0.154 | 0.494 | 0.236 | 0.291 |
|  |  | *Proteus mirabilis* | -0.023 | 0.929 | 0.061 | 0.81 |
|  |  | *Serratia marcescens* | – | – | – | – |
|  |  | *Enterobacter cloacae* | 0.183 | 0.416 | 0.226 | 0.313 |
|  | Ceftriaxone | *Escherichia coli* | -0.187 | 0.405 | -0.126 | 0.577 |
|  |  | *Klebsiella pneumoniae* | 0.092 | 0.691 | 0.166 | 0.473 |
|  |  | *Proteus mirabilis* | -0.286 | 0.343 | -0.364 | 0.221 |
|  |  | *Serratia marcescens* | 0.336 | 0.16 | 0.463 | **0.046\*** |
|  |  | *Enterobacter cloacae* | 0.154 | 0.506 | 0.248 | 0.279 |
|  | Ceftazidime | *Escherichia coli* | -0.211 | 0.347 | -0.21 | 0.349 |
|  |  | *Klebsiella pneumoniae* | 0.142 | 0.528 | 0.221 | 0.324 |
|  |  | *Proteus mirabilis* | -0.023 | 0.929 | 0.061 | 0.81 |
|  |  | *Serratia marcescens* | 0.405 | 0.068 | 0.546 | **0.011\*** |
|  |  | *Enterobacter cloacae* | 0.258 | 0.246 | 0.126 | 0.578 |
|  |  | *Pseudomonas aeruginosa* | 0.233 | 0.296 | 0.233 | 0.296 |
|  |  | *Acinetobacter baumannii* | -0.407 | 0.105 | -0.289 | 0.262 |
| Fourth-generation cephalosporins | Cefepime | *Escherichia coli* | 0.229 | 0.306 | 0.18 | 0.423 |
|  |  | *Klebsiella pneumoniae* | 0.602 | **0.003\*\*** | 0.605 | **0.003\*\*** |
|  |  | *Proteus mirabilis* | 0.218 | 0.384 | 0.146 | 0.563 |
|  |  | *Serratia marcescens* | – | – | – | – |
|  |  | *Enterobacter cloacae* | -0.139 | 0.538 | -0.168 | 0.455 |
|  |  | *Pseudomonas aeruginosa* | 0.284 | 0.201 | 0.347 | 0.114 |
|  |  | *Acinetobacter baumannii* | -0.229 | 0.376 | -0.195 | 0.453 |
| Carbapenems | Meropenem | *Escherichia coli* | 0.224 | 0.317 | 0.189 | 0.399 |
|  |  | *Klebsiella pneumoniae* | 0.328 | 0.136 | 0.289 | 0.193 |
|  |  | *Enterobacter cloacae* | 0.417 | 0.053 | 0.34 | 0.122 |
|  |  | *Pseudomonas aeruginosa* | 0.678 | **<0.001\*\*\*** | 0.611 | **0.003\*\*** |
|  |  | *Acinetobacter baumannii* | – | – | – | – |
|  | Imipenem/cilastatin | *Escherichia coli* | 0.224 | 0.317 | 0.189 | 0.399 |
|  |  | *Klebsiella pneumoniae* | 0.328 | 0.136 | 0.289 | 0.193 |
|  |  | *Proteus mirabilis* | – | – | – | – |
|  |  | *Serratia marcescens* | -0.301 | 0.21 | -0.215 | 0.376 |
|  |  | *Enterobacter cloacae* | 0.271 | 0.222 | 0.201 | 0.369 |
|  |  | *Pseudomonas aeruginosa* | 0.688 | **<0.001\*\*\*** | 0.624 | **0.002\*\*** |
|  |  | *Acinetobacter baumannii* | – | – | – | – |
| Aminoglycosides | Gentamicin | *Escherichia coli* | -0.053 | 0.816 | -0.05 | 0.824 |
|  |  | *Klebsiella pneumoniae* | -0.039 | 0.862 | -0.139 | 0.538 |
|  |  | *Proteus mirabilis* | 0.085 | 0.737 | 0.085 | 0.737 |
|  |  | *Serratia marcescens* | 0 | 1 | 0.259 | 0.258 |
|  |  | *Enterobacter cloacae* | – | – | – | – |
|  |  | *Pseudomonas aeruginosa* | 0.047 | 0.836 | -0.056 | 0.805 |
|  |  | *Acinetobacter baumannii* | 0.011 | 0.968 | -0.038 | 0.885 |
|  | Amikacin | *Escherichia coli* | -0.161 | 0.474 | -0.219 | 0.328 |
|  |  | *Klebsiella pneumoniae* | 0.032 | 0.889 | 0.11 | 0.627 |
|  |  | *Proteus mirabilis* | 0.351 | 0.154 | 0.164 | 0.517 |
|  |  | *Serratia marcescens* | 0 | 1 | 0.259 | 0.258 |
|  |  | *Enterobacter cloacae* | – | – | – | – |
|  |  | *Pseudomonas aeruginosa* | 0.309 | 0.161 | 0.201 | 0.369 |
|  |  | *Acinetobacter baumannii* | 0.102 | 0.697 | 0.051 | 0.846 |
| Quinolones | Levofloxacin | *Escherichia coli* | 0.476 | **0.025\*** | 0.466 | **0.029\*** |
|  |  | *Klebsiella pneumoniae* | 0.594 | **0.004\*\*** | 0.615 | **0.002\*\*** |
|  |  | *Proteus mirabilis* | 0.289 | 0.245 | 0.289 | 0.245 |
|  |  | *Serratia marcescens* | 0.285 | 0.211 | 0.285 | 0.211 |
|  |  | *Enterobacter cloacae* | 0.206 | 0.357 | 0.221 | 0.323 |
|  |  | *Pseudomonas aeruginosa* | 0.226 | 0.311 | 0.24 | 0.283 |
|  |  | *Acinetobacter baumannii* | -0.19 | 0.466 | -0.19 | 0.466 |
| Antibiotic use was evaluated as both AUD (DDDs/100 patient-days) and DOT (DOTs/100 patient-days).  Abbreviations: AUD, antibiotic use density; DDDs, defined daily doses; DOT, days of therapy.  ρ indicates Spearman’s correlation coefficient.  P values marked in bold are < 0.05.  \*, \*\*, and \*\*\* indicate statistically significant correlations (P < 0.05, P < 0.01, and P < 0.001, respectively). | | | | | | |