**Supplementary Materials – *BMJ Open***

# Estimating the Value of New Antibiotic Treatment Strategies in Zhejiang Province, China: Cost-Effectiveness Analysis Based on a Validated Dynamic Model

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# Appendix A. Cohort Characteristics

**Table A.1** Patient characteristics of included inpatients from tier-3 hospital.

| **Gender** | **Male** | **Female** | | |
|---|---|---|---|---|
| | 6293 | 4612 | | |
| **Year of hospitalization** | **Year 2018** | **Year 2019** | **Year 2020** | **Year 2021** |
| | 1365 | 3027 | 3056 | 3457 |
| | **Min** | **Max** | **Median** | **Mean** |
| **Age** | 19 | 99 | 69 | 68.36 |
| **Hospital LOS (days)** | 0 (<1) | 377 | 23 | 23.71 |
| **Hospitalization costs (¥)** | 0.00 | 1,100,000.00 | 41,272.30 | 72,514.92 |

LOS: length of stay



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# Appendix B. Model Inputs Derivation

**Table B.2** The derivation of the main model inputs.

| Model Input | Derivation | Value | Input Source |
|---|---|---|---|
| Willingness-to-pay (WTP) threshold | Three times the average per capita Gross Domestic Product (GDP) in Zhejiang Province, China, from 2018 to 2021. Then it was converted to baseline value using the Consumer Price Index (CPI) with 2021 as the base year | * ¥313,087.99 (US$44,959.44) | China National Bureau of Statistics |
| Discount rate | Guidelines recommendation | 5% | China Guidelines for Pharmacoeconomic Evaluations |
| Life expectancy post treatment success | The average life expectancy of the population of Zhejiang Province (77.73 years) minus the average age at the successful treatment of 10,905 inpatients (68.13 years) yielded the life expectancy post treatment success of 9.60 years | 9.60 years | National Bureau of Statistics. The average life expectancy of the population of Zhejiang Province; Calculated from the data of the tier-3 hospital |
| Utility-not infected | Directly from the literature | 0.78 | York CHE[19] |
| Utility-infected | Directly from the literature | 0.62 | Literature |
| LOS-successful treatment | In the inpatients' prognosis data, for successful treated (patients who were cured or improved) and unsuccessfully treated (patients who remained infected or died) | 10.91 days | Calculated from the data of the tier-3 hospital |
| LOS-unsuccessful treatment | | 10.40 days | Calculated from the data of the tier-3 hospital |
| Additional LOS for mortality | Derived based on the difference in average LOS with the discharge outcome of death (27.54 days) and non-death (23.17 days) | 4.37 days | Calculated from the data of the tier-3 hospital |
| Daily hospitalization cost | The total per patient average of laboratory costs, hospital costs, and medication costs for 10,905 inpatients, adjusted with CPI. | * ¥3062.73 (US$439.81) | Calculated from the data of the tier-3 hospital |
| Treatment efficacy -pip/taz | Directly from the literature | 0.83 | Literature |
| Treatment efficacy-meropenem | Directly from the literature | 0.87 | Literature |

| | | | |
|---|---|---|---|
| Treatment efficacy-CAZ-AVI | Assumption | 0.90 | Assumed |

CHE: Centre for Health Economics; LOS: length of stay; pip/taz: piperacillin-tazobactam; CAZ-AVI: Ceftazidime/Avibactam

*Exchange rate: ¥1= US$0.1436 (9 Dec 2022)

**Table B.3** The derivation of baseline resistance specific inputs.

| | | ***E. Coli*** | ***Klebsiella* spp.** | ***P. aeruginosa*** |
|---|---|---|---|---|
| **Number of infections** | | 3701 | 3657 | 3547 |
| **Number of antibiotic-resistant cases** | **Pip/taz** | 107 | 1430 | 1177 |
| | **Meropenem** | 74 | 1361 | 1689 |
| | **CAZ-AVI** | / | / | / |
| **Resistance Rate** | **Pip/taz** | 2.89% | 39.10% | 33.18% |
| | **Meropenem** | 2.00% | 37.22% | 47.62% |
| | **CAZ-AVI** | 0.00% | 0.00% | 0.00% |

pip/taz: piperacillin-tazobactam; CAZ-AVI: Ceftazidime/Avibactam; *E. coli: Escherichia coli; P. aeruginosa: Pseudomonas aeruginosa*