**Antimicrobial Activity of Cefoperazone-Sulbactam Tested against Gram-Negative Organisms from Europe, Asia-Pacific, and Latin America in 2015–2016**

**Introduction**

- Cefoperazone-sulbactam is a beta-lactam/beta-lactamase inhibitor combination with activity against gram-negative pathogens and penetration into various body fluids, including cerebrospinal fluid and pleural tissue, when administered intravenously. This study investigated the in vitro activity of cefoperazone-sulbactam against non-Extended-spectrum-lactamase (ESBL)-producing Enterobacteriaceae.

**Materials and Methods**

- **Organism collection**: A total of 4,408 isolates, including 1,838 isolates from Western Europe (W-EUR; 46 centres in 10 nations), 891 isolates from Eastern Europe (E-EUR; 15 centres in 11 nations), 636 isolates from the Asia-Pacific region (APAC; 21 centres in 11 nations), and 453 isolates from Latin America (LATAM; 20 centres in 12 nations), were collected. The isolates were identified by JMI Laboratories (North Liberty, Iowa, USA) when necessary by Vitek 2 or MALDI–TOF mass spectrometry. Antimicrobial susceptibility testing was performed by the participating centres and confirmed at JMI Laboratories. Clinical specimens were cultured using the Brain Heart Infusion (BHI) broths (Becton Dickinson, Sparks, MD) or in 15% sheep blood agar plates. Sensitivity results were interpreted according to CLSI criteria in M100 (2018) and EUCAST (2018) for susceptible and ≥64 mg/L for resistance.

- **Susceptibility testing**: Isolates were tested for susceptibility to multiple antimicrobial agents at a central reference laboratory (JMI Laboratories) by reference broth microdilution methods in the CLSI ES-GH25 document (2016), using 0.5× MICs prepared from reference stock solutions. Cefoperazone-sulbactam was tested at a 1:1 ratio (MIC90/90) to minimize interpretational error, and the Sulperazon® package insert was used. MIC results were interpreted according to CLSI criteria in M100 (2018) and EUCAST (2018).

**Results**

- **Sulbactam**: 95.0% of Enterobacteriaceae were susceptible (≤16 mg/L), but in the Sulperazon® package insert, the susceptibility levels were considered 64 mg/L (≥MIC90/90) for susceptible and 128 mg/L for resistant. Therefore, the susceptibility was recalculated in the Sulperazon® package insert and the Cefobid® package insert, using ≤16 mg/L for susceptible and ≥64 mg/L for resistant.

- **Extended-spectrum-lactamase (ESBL) isolates**: The susceptibility rates among the most active compounds have a role for treating infections caused by gram-negative organisms and remains generally lowest in E-EUR when compared to the other geographic regions evaluated. Cefoperazone-sulbactam continues to demonstrate in vitro activity and is in the top 10% of active compounds.

**Conclusions**

- This large collection of clinical isolates of gram-negative organisms was studied in multiple geographic environments across Asia-Pacific, Europe, and Latin America. Cefoperazone-sulbactam continues to demonstrate in vitro activity and is in the top 10% of active compounds.

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**References**


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