

Activity of Cefiderocol against US Isolates of *Pseudomonas aeruginosa*, *Acinetobacter baumannii-calcoaceticus* complex, and *Stenotrophomonas maltophilia*, Including Carbapenem-Resistant Isolates (2020–2022)

Deborah R. Mede, Maria Carolina de Almeida
JMI Laboratories, North Liberty, Iowa, USA

Introduction

- Cefiderocol is a siderophore-conjugated cephalosporin with broad activity against Gram-negative bacteria, including multidrug-resistant organisms.
- Cefiderocol was approved by the EMA for the treatment of infections caused by Gram-negative bacteria in adult patients with limited treatment options and the US FDA for complicated urinary tract infection, hospital-acquired bacterial pneumonia, and ventilator-associated bacterial pneumonia.
- Non-glucose-fermenting species including *P. aeruginosa* complex, and *A. baumannii* are often extensively drug-resistant (XDR), presenting serious treatment challenges.
- The susceptibility of cefiderocol and comparator agents was investigated against non-glucose-fermenting US isolates collected in 2020–2022 as part of the SENTRY Antimicrobial Surveillance Program.

Materials and Methods

- A total of 2,982 *P. aeruginosa*, 799 *A. baumannii* complex, and 585 *S. maltophilia* were isolated from hospitalised patients in 63 US medical centres.

Results

- The most common infection type from which isolates were collected was pneumonia ($n=2,340$), followed by skin and skin structure ($n=827$), bloodstream infection ($n=543$), urinary tract infection ($n=391$), intra-abdominal infection ($n=142$), and other sites ($n=123$).
- P. aeruginosa* susceptibilities to cefiderocol and BL/BLI combinations were >96.0%, except for meropenem-vaborbactam (90.8%; Table 1).
- Cefiderocol was the most active agent against XDR *P. aeruginosa* isolates (susceptibility 98.2/97.1/93.0% CLSI/EUCAST/FDA, respectively). The susceptibilities of the BL/BLI combinations against these XDR isolates ranged from 42.1% to 78.8%.
- Cefiderocol had higher susceptibilities than comparator agents against BL/BLI-resistant *P. aeruginosa* isolates (Table 1, Figure 1).
- A. baumannii* complex susceptibility to cefiderocol was 98.5/97.2/93.6% (CLSI/EUCAST/FDA; Table 2, Figure 1).
- Cefiderocol retained good activity against XDR, meropenem-resistant, or imipenem-relebactam-resistant *A. baumannii* complex isolates, with 85.0% susceptibility.
- Cefiderocol was active against *S. maltophilia* (98.5/99.3% susceptible, CLSI/EUCAST; Table 2, Figure 1).

Conclusions

- Cefiderocol was the most active β -lactam with broad activity against contemporary US isolates of drug-resistant subsets of *P. aeruginosa* and *A. baumannii* complex as well as *S. maltophilia*, where treatment options are limited.
- These data suggest that cefiderocol is an important treatment option for infections caused by non-glucose-fermenting pathogens, including meropenem-, BL/BLI-resistant, and XDR isolates.

References

- CLSI. M07Ed11. Methods for dilution antimicrobial susceptibility tests for bacteria that grow aerobically; approved standard. Wayne, PA, Clinical and Laboratory Standards Institute, 2018.
- CLSI. M100Ed32. Performance standards for antimicrobial susceptibility testing. Wayne, PA, Clinical and Laboratory Standards Institute, 2022.
- US FDA. Antibacterial Susceptibility Test Interpretive Criteria, 2022. <https://www.fda.gov/drugs/development-resources/antibacterial-susceptibility-test-interpretive-criteria>.
- EUCAST. Breakpoint tables for interpretation of MICs and zone diameters. Version 12.0. Växjö, Sweden, European Committee on Antimicrobial Susceptibility Testing, 2022.