Poster 2791

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Antimicrobial Activity of Cefiderocol and Comparator Agents Against Isolates of *Pseudomonas aeruginosa*, *Acinetobacter baumannii-calcoaceticus* Species Complex, and *Stenotrophomonas maltophilia* by Infection Type from United States Hospitals in the SENTRY Antimicrobial Surveillance Program (2020–2022)

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Objective

- To evaluate the antimicrobial susceptibility of cefiderocol and comparator agents against *Pseudomonas aeruginosa*, *Acinetobacter baumannii-calcoaceticus* complex, and *Stenotrophomonas maltophilia* stratified by infection type from US hospitals in the SENTRY Antimicrobial Surveillance Program.

Methods

- Minimum inhibitory concentrations (MICs) were determined for 3,383 *P. aeruginosa*, 910 *A. baumannii-calcoaceticus* species complex, and 657 *S. maltophilia* isolates from US hospitals. Susceptibility (%S) was tested using broth microdilution with cation-adjusted Mueller–Hinton broth (CAMHB) for comparators and iron-depleted CAMHB for cefiderocol.
- Carbapenem non-susceptible (CarbNS) was defined as non-susceptibility to imipenem and meropenem. Susceptibility was interpreted according to 2023 CLSI and FDA breakpoints.

Conclusions

In isolates collected from US hospitals, cefiderocol was the most active agent with >90% susceptibility across all infection types against *P. aeruginosa*, *A. baumannii-calcoaceticus* complex, including those isolates that were CarbNS, and *S. maltophilia*.

Overall, cefiderocol had the lowest MIC_{50} and MIC_{90} values across the different infection types.

Cefiderocol represents a potential option for empiric antimicrobial therapy in US hospitals with high rates of CarbNS non-fermenting Gram-negative pathogens.

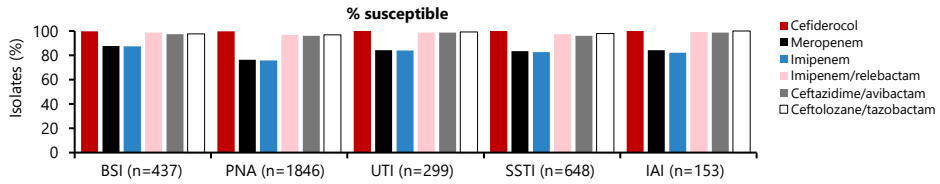
Results

Table 1. Activity of cefiderocol and selected comparator agents tested against *P. aeruginosa*, *A. baumannii-calcoaceticus* complex, and *S. maltophilia* isolates collected from 2020–2022 in US hospitals

Antimicrobial agent	MIC_{50} µg/mL	MIC_{90} µg/mL	CLSI[a] %S	CLSI[a] %I	CLSI[a] %R	FDA[a] %S	FDA[a] %I	FDA[a] %R
***P. aeruginosa* (N=3,383)**								
Cefiderocol	0.12	0.25	99.8	0.1	0.1	98.5	1.1	0.5
Meropenem	0.5	8	80.2	5.9	13.9	80.2	5.9	13.9
Imipenem	1	8	79.7	4.0	16.4	79.7	4.0	16.4
Imipenem-relebactam	0.25	1	97.4	1.7	0.9	97.4	1.7	0.9
Ceftazidime-avibactam	2	8	96.5	-	3.5	96.5	-	3.5
Ceftolozane-tazobactam	0.5	2	97.5	1.1	1.4	97.5	1.1	1.4
CarbNS – *P. aeruginosa* (N=572)								
Cefiderocol	0.12	0.5	99.3	0.5	0.2	96.0	2.8	1.2
Imipenem-relebactam	1	4	84.8	10.0	5.2	84.8	10.0	5.2
Ceftazidime-avibactam	4	16	85.3	-	14.7	85.3	-	14.7
Ceftolozane-tazobactam	1	8	89.3	4.9	5.8	89.3	4.9	5.8
***A. baumannii-calcoaceticus* complex (N=910)**								
Cefiderocol	0.12	1	98.4	0.7	0.9	98.8	0.7	0.9
Meropenem	0.5	>32	70.2	0.6	29.2	70.2	0.6	29.2
Imipenem	0.25	>8	71.2	1.1	27.7	71.2	1.1	27.7
Ampicillin-sulbactam	4	64	68.2	7.4	24.4	68.2	7.4	24.4
Minocycline	0.12	8	86.3	5.7	8.0	86.3	5.7	8.0
CarbNS – *A. baumannii-calcoaceticus* complex (N=254)								
Cefiderocol	0.5	2	96.1	1.8	2.1	84.4	8.9	6.7
Ampicillin-sulbactam	32	>64	10.6	13.8	75.5	10.6	13.8	75.5
Minocycline	4	16	60.6	14.5	24.8	60.6	14.5	24.8
***S. maltophilia* (N=657)**								
Cefiderocol	0.06	0.25	98.5	-	-			
Levofloxacin	1	8	82.0	7.4	10.6			
Trimethoprim-sulfamethoxazole	≤0.12	0.5	97.7	-	2.3			
Minocycline	0.5	1	99.9	0.0	0.1			

[a]Criteria as published by CLSI (2023), and US FDA (2023). n, number of isolates; CarbNS, carbapenem non-susceptible; I, intermediate; MIC, minimum inhibitory concentration; R, resistant; S, susceptible.

Figure 1. Susceptibility to cefiderocol and selected comparator agents (CLSI interpretation) against all *P. aeruginosa* isolates (N=3,383) collected from 2020–2022 in US hospitals stratified by infection type



BSI, bloodstream infection; IAI, intra-abdominal infection; PNA, pneumonia; SSTI, skin and soft tissue infection; UTI, urinary tract infection.

Figure 2. Susceptibility to cefiderocol and selected comparator agents (CLSI interpretation) against CarbNS *P. aeruginosa* (N=572) collected from 2020–2022 in US hospitals stratified by infection type

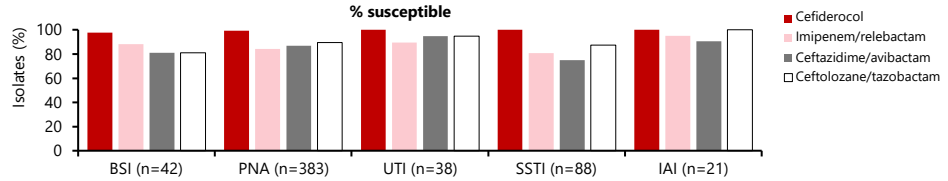


Figure 3. Susceptibility to cefiderocol and selected comparator agents (CLSI interpretation) against all isolates of *A. baumannii-calcoaceticus* species complex (N=910) collected from 2020–2022 in US hospitals stratified by infection type

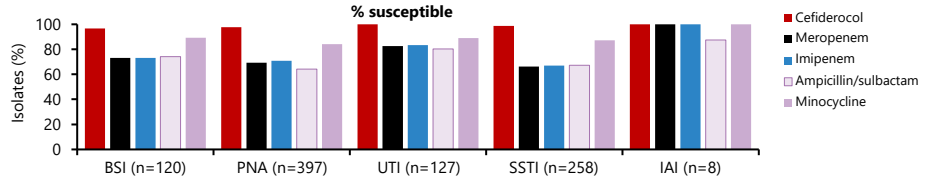


Figure 4. Susceptibility to cefiderocol and selected comparator agents (CLSI interpretation) against isolates of CarbNS *A. baumannii-calcoaceticus* complex (N=254) collected from 2020–2022 in US hospitals stratified by infection type

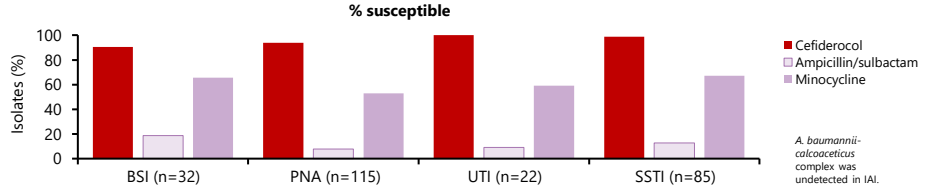
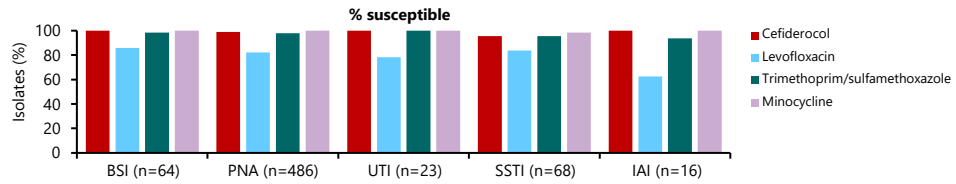


Figure 5. Susceptibility to cefiderocol and selected comparator agents (CLSI interpretation) against *S. maltophilia* (N=657) collected from 2020–2022 in US hospitals stratified by infection type



BSI, bloodstream infection; IAI, intra-abdominal infection; PNA, pneumonia; SSTI, skin and soft tissue infection; UTI, urinary tract infection.