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Activity of Cefiderocol-Xeruborbactam and Comparator Agents against *Pseudomonas aeruginosa*, Including Molecularly Characterized Isolates Recovered Globally in 2024

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Background

- Cefiderocol-xeruborbactam is a combination of a siderophore-conjugated cephalosporin with a boronate β-lactamase inhibitor and this combination has notable antimicrobial activity against Gram-negative pathogens.
- Herein, the activity of cefiderocol-xeruborbactam and comparators was evaluated against *P. aeruginosa* collected from the United States, Europe, Turkey, and Israel in 2024.

Methods

- A total of 2,185 *P. aeruginosa* were consecutively collected from 69 hospitals in 20 countries through the SENTRY Surveillance Program.
- Susceptibility testing was performed using broth microdilution with cation-adjusted Mueller-Hinton broth (CAMHB) for all agents except cefiderocol, which was tested in iron-depleted CAMHB.
- CLSI breakpoints were applied. *P. aeruginosa* isolates displaying MIC values of ≥4 mg/L for meropenem or imipenem were screened for carbapenemases.

Results

- Cefiderocol-xeruborbactam exhibited potent activity against *P. aeruginosa* collected from the US (Figure 1) and Europe (Figure 2) with 99.6% of isolates with an MIC ≤4 mg/L and $MIC_{50/90}$ values of ≤0.06/0.25 mg/L, while % susceptibility varied from 91.4–99.9% for comparators (Table 1).
- Besides colistin, cefiderocol-xeruborbactam was the most active antibiotic tested with 92.9–99.2% of isolates having an MIC ≤4 mg/L including multidrug-resistant (MDR), extensively drug-resistant (XDR), ceftolozane-tazobactam-non-susceptible (NS), and carbapenem-NS with and without carbapenemases (Table 1 and Figure 3).
- Against MDR isolates, comparators, except for meropenem-vaborbactam, were effective with 71.8–100% of isolates testing susceptible. XDR isolates were not as susceptible to most comparators (29.4–49.7%) except for cefiderocol at 92.2% and colistin at 100% (Table 1 and Figure 3).
- *P. aeruginosa* from Europe were less susceptible to cefiderocol-xeruborbactam, cefiderocol, and ceftazidime-avibactam compared to isolates from the US (Figure 3).
- European isolates were more susceptible to ceftolozane-tazobactam, imipenem-relebactam, and meropenem-vaborbactam compared to US isolates (Figure 3).
- Carbapenemase positive *P. aeruginosa* were mostly collected from Europe, while a single isolate with a carbapenemase was identified in US isolates (Figure 3).
- Results for isolates with or without carbapenemases were mixed with cefiderocol-xeruborbactam performing well; 92.9–99.2% of isolates had an MIC ≤4 mg/L (Table 1 and Figure 3).
- Ceftolozane-tazobactam, imipenem-relebactam, meropenem-vaborbactam, and ceftazidime-avibactam showed 2.4–4.8% susceptibility against carbapenemase-producers while cefiderocol was at 76.2% (Table 1 and Figure 3).
- Activity was better against non-carbapenemase producers with ceftolozane-tazobactam, imipenem-relebactam, meropenem-vaborbactam, and ceftazidime-avibactam and cefiderocol displaying 69.8–99.2% susceptibility (Table 1 and Figure 3).

Conclusions

- Cefiderocol-xeruborbactam was very active against *P. aeruginosa*, including isolates producing carbapenemases or non-susceptible to ceftolozane-tazobactam.
- These data support further development of cefiderocol-xeruborbactam for the treatment of infections caused by *P. aeruginosa*.

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References

CLSI. 2026. M100Ed36. Performance standards for antimicrobial susceptibility testing: 36th informational supplement. Clinical and Laboratory Standards Institute.

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Figure 1. U.S. Census division distribution of *P. aeruginosa* and cefiderocol-xeruborbactam AST results (n=1,078)

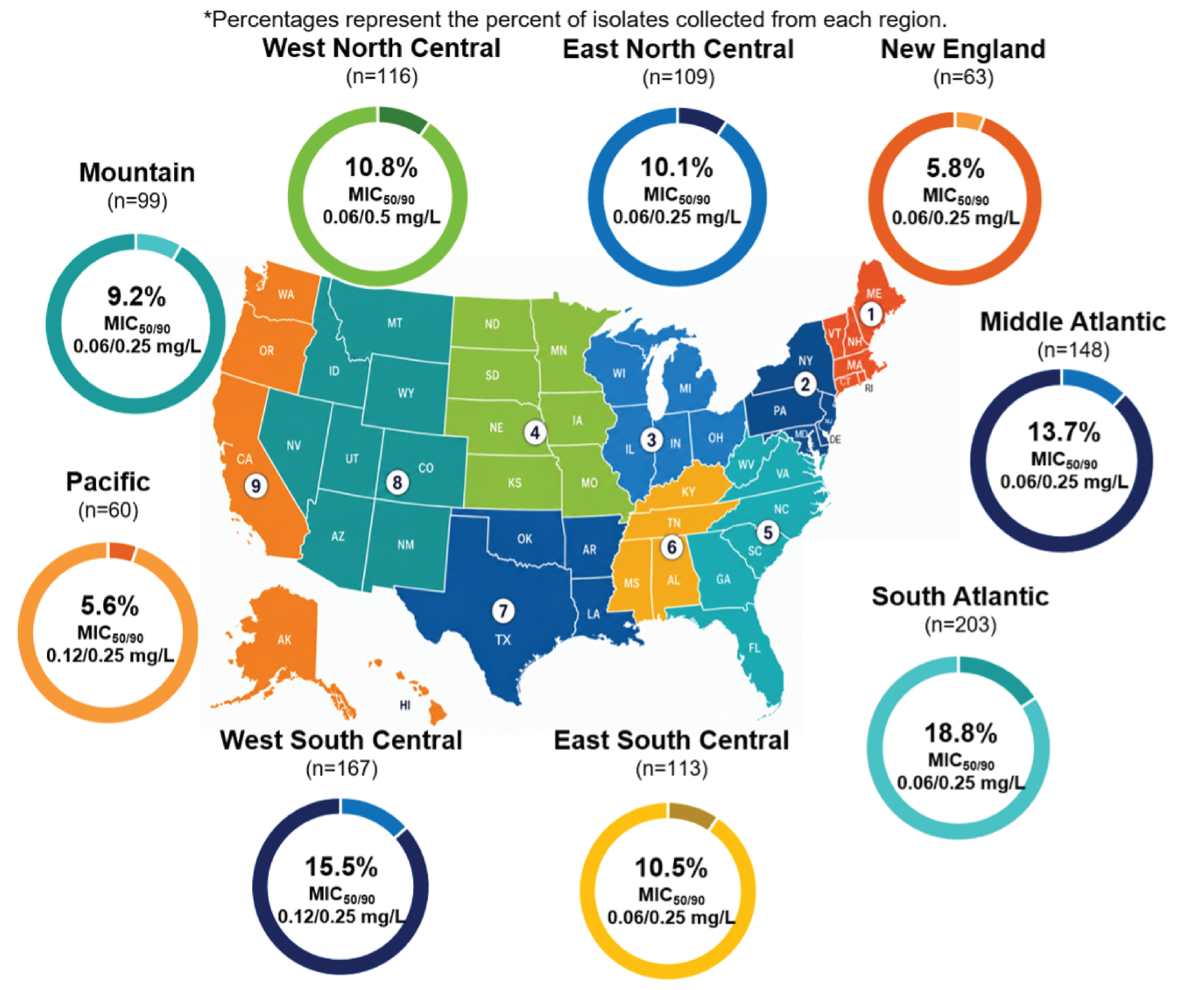

*Percentages represent the percent of isolates collected from each region.
West North Central (n=116) 10.8% MIC50/90 0.06/0.5 mg/L
East North Central (n=109) 10.1% MIC50/90 0.06/0.25 mg/L
New England (n=63) 5.8% MIC50/90 0.06/0.25 mg/L
Mountain (n=99) 9.2% MIC50/90 0.06/0.25 mg/L
Middle Atlantic (n=148) 13.7% MIC50/90 0.06/0.25 mg/L
Pacific (n=60) 5.6% MIC50/90 0.12/0.25 mg/L
South Atlantic (n=203) 18.8% MIC50/90 0.06/0.25 mg/L
West South Central (n=167) 15.5% MIC50/90 0.12/0.25 mg/L
East South Central (n=113) 10.5% MIC50/90 0.06/0.25 mg/L

Figure 2. European distribution of *P. aeruginosa* and cefiderocol-xeruborbactam AST results (n=1,107)

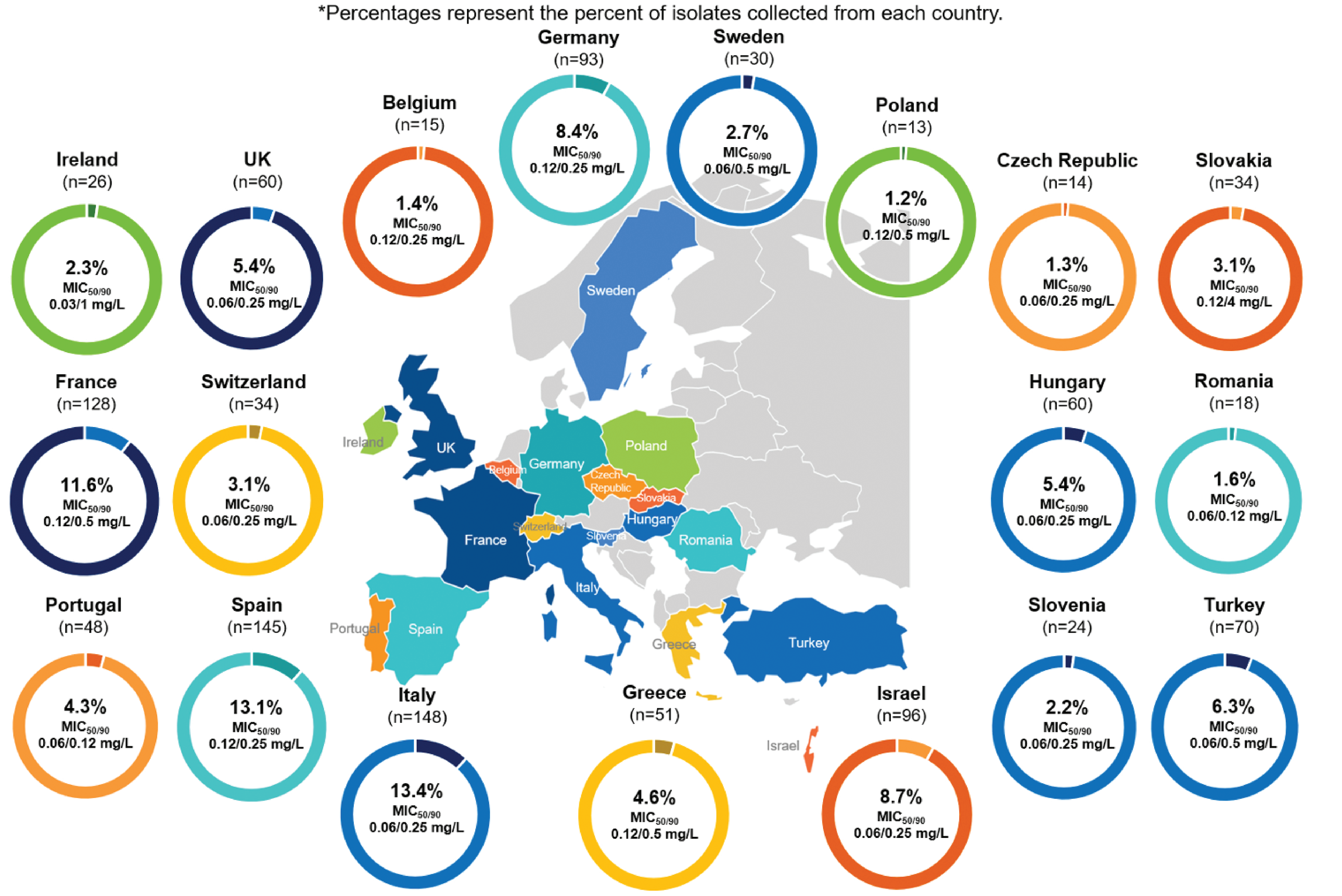

*Percentages represent the percent of isolates collected from each country.
Germany (n=93) 8.4% MIC50/90 0.12/0.25 mg/L
Sweden (n=30) 2.7% MIC50/90 0.06/0.5 mg/L
Belgium (n=15) 1.4% MIC50/90 0.12/0.25 mg/L
Poland (n=13) 1.2% MIC50/90 0.12/0.5 mg/L
Ireland (n=26) 2.3% MIC50/90 0.03/1 mg/L
UK (n=60) 5.4% MIC50/90 0.06/0.25 mg/L
Czech Republic (n=14) 1.3% MIC50/90 0.06/0.25 mg/L
Slovakia (n=34) 3.1% MIC50/90 0.12/4 mg/L
France (n=128) 11.6% MIC50/90 0.12/0.5 mg/L
Switzerland (n=34) 3.1% MIC50/90 0.06/0.25 mg/L
Hungary (n=60) 5.4% MIC50/90 0.06/0.25 mg/L
Romania (n=18) 1.6% MIC50/90 0.06/0.12 mg/L
Portugal (n=48) 4.3% MIC50/90 0.06/0.12 mg/L
Spain (n=145) 13.1% MIC50/90 0.12/0.25 mg/L
Slovenia (n=24) 2.2% MIC50/90 0.06/0.25 mg/L
Turkey (n=70) 6.3% MIC50/90 0.06/0.5 mg/L
Italy (n=148) 13.4% MIC50/90 0.06/0.25 mg/L
Greece (n=51) 4.6% MIC50/90 0.12/0.5 mg/L
Israel (n=96) 8.7% MIC50/90 0.06/0.25 mg/L

Figure 3. Antimicrobial activity of cefiderocol-xeruborbactam and comparators against Enterobacterales stratified by phenotype and region

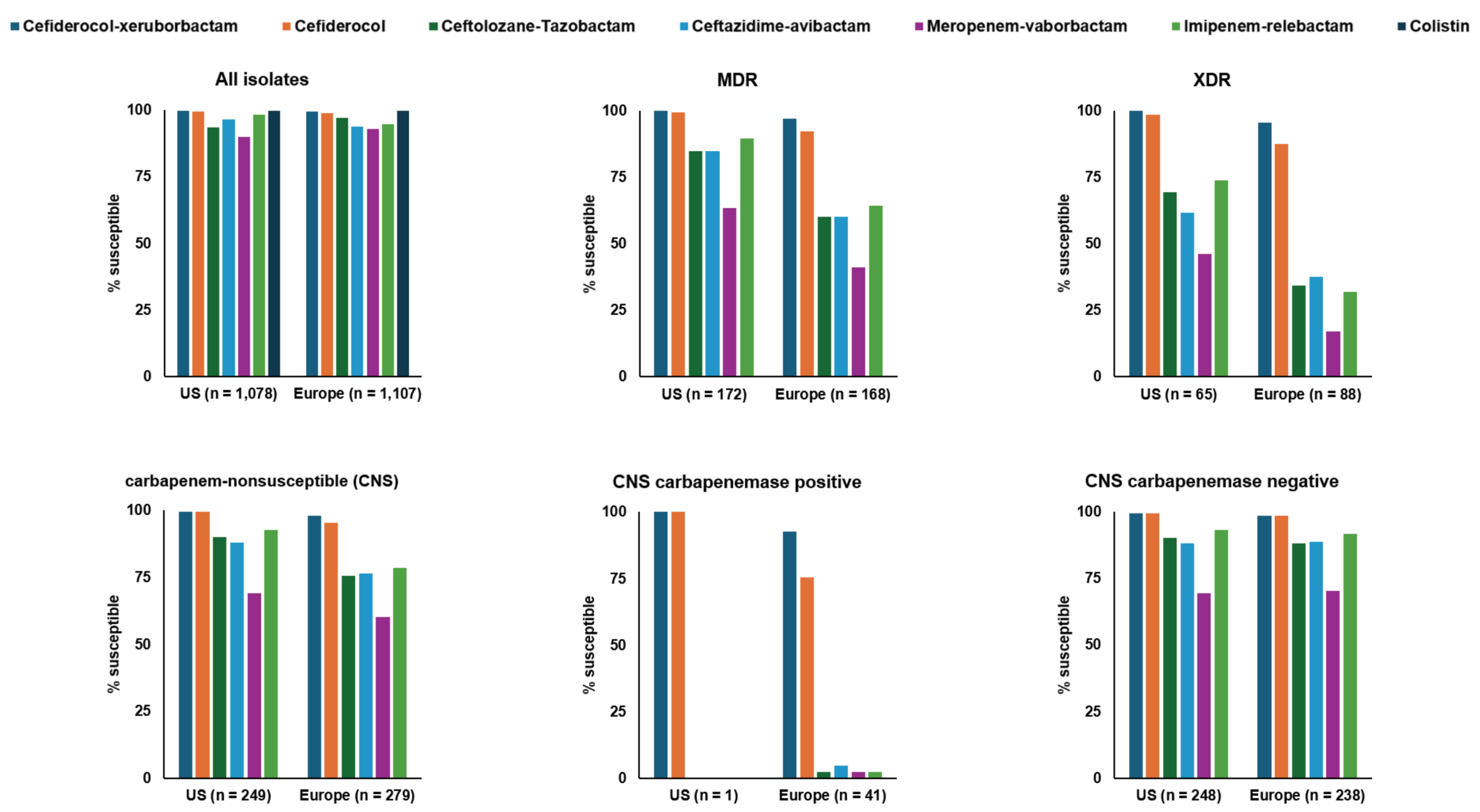

Cefiderocol-xeruborbactam
Cefiderocol
Ceftolozane-Tazobactam
Ceftazidime-avibactam
Meropenem-vaborbactam
Imipenem-relebactam
Colistin
All isolates
US (n = 1,078)
Europe (n = 1,107)
MDR
US (n = 172)
Europe (n = 168)
XDR
US (n = 65)
Europe (n = 88)
carbapenem-nonsusceptible (CNS)
US (n = 249)
Europe (n = 279)
CNS carbapenemase positive
US (n = 1)
Europe (n = 41)
CNS carbapenemase negative
US (n = 248)
Europe (n = 238)
% susceptible
0
25
50
75
100

Table 1. Antimicrobial activity of cefiderocol-xeruborbactam and comparators against *P. aeruginosa*

%Susceptible: ≥99% | 98.9-90% | 89.9-60% | 59.9-40% | 39.9-0%

Phenotype/genotype (No.)	MIC_{50}/MIC_{90} in mg/L (% susceptible by CLSI criteria)[a]						
	Cefiderocol-xeruborbactam [b]	Cefiderocol	Ceftolozane-Tazobactam	Imipenem-relebactam	Meropenem-vaborbactam	Ceftazidime-avibactam	Colistin
All (2,185)	≤0.06/0.25 99.6%	0.12/0.5 99.2%	0.5/2 95.3%	0.25/1 96.4%	0.5/8 91.4%	2/8 95.1%	0.5/1 99.9%
MDR (340)[c]	0.12/1 98.5%	0.25/2 95.9%	2/>16 72.6%	1/>16 77.1%	8/>32 52.4%	4/>32 71.8%	0.5/1 100%
XDR (153)[c]	0.12/2 97.4%	0.25/4 92.2%	8/>16 49.0%	4/>16 49.7%	16/>32 29.4%	16/>32 47.7%	0.5/1 100%
Ceftolozane-Tazobactam-NS (102)[d]	0.25/2 96.1%	0.5/4 86.3%	>16/>16 0.0%	4/>16 41.2%	32/>32 25.5%	32/>32 23.5%	0.5/1 100%
Carbapenem-NS (528)[d]	0.12/1 98.7%	0.12/1 97.3%	1/>16 82.4%	1/8 85.2%	8/32 64.4%	4/32 81.8%	0.5/1 100%
Carbapenemase + (42)[e]	1/4 92.9%	2/16 76.2%	>16/>16 2.4%	>16/>16 2.4%	>32/>32 2.4%	>32/>32 4.8%	1/1 100%
Carbapenemase – (486)	0.06/0.5 99.2%	0.12/0.5 99.2%	1/8 89.3%	1/2 92.4%	4/16 69.8%	4/16 88.3%	0.5/1 100%

Abbreviations: C/T, ceftolozane-tazobactam; MDR, multidrug-resistant; XDR, extensively drug-resistant; NS, non-susceptible; +, positive; -, negative.

[a] MIC results were interpreted according to CLSI criteria for colistin % susceptible value is % intermediate; one exception is meropenem-vaborbactam for which EUCAST criteria were used. FDX MICs were read at 100% inhibition tested in CAMHB and FDC MICs were read at significant reduction tested in ID-CAMHB. As breakpoints are not available for FDX, % values represent % of MIC values for FDX ≤ 4 mg/L

[b] Xeruborbactam was tested at fixed 4 mg/L, while the concentration of cefiderocol was varied.

[c] MDR was defined as resistance to at least one drug in three or more antimicrobial categories. XDR was defined as resistance to all but ≤2 antimicrobial categories

[d] C/T-NS, isolates non-susceptible to ceftolozane-tazobactam based on CLSI criteria (MIC values ≥8 mg/L). Carbapenem-NS, isolates non-susceptible to imipenem and/or meropenem based on CLSI criteria (MIC values ≥4 mg/L).

[e] Includes bla_{GES-5} (1), bla_{GES-59} (1), bla_{IMP-7} (1), bla_{NDM-1} (24), bla_{VIM-1} (3), bla_{VIM-2} (10), bla_{VIM-4} (1), and bla_{VIM-5} (1) genes.

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