Table 1B-5. Other Non-Enterobacterales[a,b]

Tier 1: Antimicrobial agents that are appropriate for routine, primary testing and reporting	Tier 2: Antimicrobial agents that are appropriate for routine, primary testing but may be reported following cascade reporting rules established at each institution	Tier 3: Antimicrobial agents that are appropriate for routine, primary testing in institutions that serve patients at high risk for MDROs but should only be reported following cascade reporting rules established at each institution	Tier 4: Antimicrobial agents that may warrant testing and reporting by clinician request if antimicrobial agents in other tiers are not optimal because of various factors
Ceftazidime	Cefepime		
	Imipenem Meropenem		
Gentamicin Tobramycin	Amikacin		
Piperacillin-tazobactam			
Trimethoprim-sulfamethoxazole			
	Aztreonam		
	Ciprofloxacin Levofloxacin		
	Minocycline		
			Cefotaxime Ceftriaxone
Urine Only			
Tetracycline			

Abbreviations: MDRO, multidrug-resistant organism; MIC, minimal inhibitory concentration.

Footnotes

a. Other non-Enterobacterales include *Pseudomonas* spp. and other nonfastidious, glucose-nonfermenting, gram-negative bacilli but exclude *Pseudomonas aeruginosa, Acinetobacter* spp., *Burkholderia cepacia* complex, and *Stenotrophomonas maltophilia*. Refer to each respective Table 1 for suggested antimicrobial agents to test and report.

b. MIC testing only; disk diffusion test is unreliable.

Table 2B-5. MIC Breakpoints for Other Non-Enterobacterales (Refer to General Comment [2])

Testing Conditions

Medium: Broth dilution: CAMHB
Agar dilution: MHA

Inoculum: Broth culture method or colony suspension, equivalent to a 0.5 McFarland standard

Incubation: 35°C ± 2°C; ambient air; 16–20 hours

QC Recommendations

Refer to the following:

- **Tables 5A-1 and 5A-2 that list acceptable QC ranges applicable for each method**
- **Appendix I to develop a QC plan**

When a commercial test system is used for antimicrobial susceptibility testing, refer to the manufacturer's instructions for QC **strains** and QC ranges.

General Comments

(1) Refer to Table 1B-5 for antimicrobial agents that should be considered for testing and reporting by microbiology laboratories.

(2) Other non-Enterobacterales include *Pseudomonas* spp. and other nonfastidious, glucose-nonfermenting, gram-negative bacilli but exclude *P. aeruginosa*, *Acinetobacter* spp., *Burkholderia cepacia* complex, and *Stenotrophomonas maltophilia* (refer to Tables 2B-2, 2B-3, and 2B-4, respectively). Recommendations for testing and reporting *Aeromonas* spp. (including members of *A. caviae* complex, *A. hydrophila* complex, and *A. veronii* complex), *Burkholderia mallei, Burkholderia pseudomallei,* and *Vibrio* spp. (including *V. cholerae*) are found in CLSI M45.[1]

(3) For other non-Enterobacterales, the disk diffusion method has not been systematically studied. Therefore, for this organism group, disk diffusion testing is not recommended.

NOTE: Information in boldface type is new or modified since the previous edition.

Table 2B-5. Non-Enterobacterales (Continued)

Antimicrobial Agent	Disk Content	Interpretive Categories and Zone Diameter Breakpoints, nearest whole mm			Interpretive Categories and MIC Breakpoints, µg/mL			Comments
		S	I	R	S	I	R	
PENICILLINS								
Piperacillin*	–	–	–	–	≤ 16	32–64	≥ 128	
β-LACTAM COMBINATION AGENTS								
(4) Organisms that test susceptible to the β-lactam agent alone are also considered susceptible to the β-lactam combination agent. However, organisms that test susceptible to the β-lactam combination agent cannot be assumed to be susceptible to the β-lactam agent alone. Similarly, organisms that test intermediate or resistant to the β-lactam agent alone may be susceptible to the β-lactam combination agent.								
Piperacillin-tazobactam	–	–	–	–	≤ 16/4	32/4–64/4	≥ 128/4	
Ticarcillin-clavulanate*	–	–	–	–	≤ 16/2	32/2–64/2	≥ 128/2	
CEPHEMS (PARENTERAL) (Including cephalosporins I, II, III, and IV. Please refer to Glossary I.)								
Ceftazidime	–	–	–	–	≤ 8	16	≥ 32	
Cefepime	–	–	–	–	≤ 8	16	≥ 32	
Cefotaxime	–	–	–	–	≤ 8	16–32	≥ 64	
Ceftriaxone	–	–	–	–	≤ 8	16–32	≥ 64	
Cefoperazone*	–	–	–	–	≤ 16	32	≥ 64	
Ceftizoxime*	–	–	–	–	≤ 8	16–32	≥ 64	
Moxalactam*	–	–	–	–	≤ 8	16–32	≥ 64	
MONOBACTAMS								
Aztreonam	–	–	–	–	≤ 8	16	≥ 32	
CARBAPENEMS								
Imipenem	–	–	–	–	≤ 4	8	≥ 16	
Meropenem	–	–	–	–	≤ 4	8	≥ 16	
AMINOGLYCOSIDES								
Gentamicin	–	–	–	–	≤ 4	8	≥ 16	
Tobramycin	–	–	–	–	≤ 4	8	≥ 16	
Amikacin	–	–	–	–	≤ 16	32	≥ 64	
Netilmicin*	–	–	–	–	≤ 8	16	≥ 32	

Table 2B-5. Non-Enterobacterales (Continued)

Antimicrobial Agent	Disk Content	Interpretive Categories and Zone Diameter Breakpoints, nearest whole mm			Interpretive Categories and MIC Breakpoints, µg/mL			Comments
		S	I	R	S	I	R	
TETRACYCLINES								
(5) Isolates that **test** susceptible to tetracycline are considered susceptible to doxycycline and minocycline. **Isolates** that **test** intermediate or resistant to tetracycline **should be tested against doxycycline or minocycline if those results are needed for treatment.**								
Tetracycline (U)[a]	–	–	–	–	≤ 4	8	≥ 16	
Doxycycline*	–	–	–	–	≤ 4	8	≥ 16	
Minocycline	–	–	–	–	≤ 4	8	≥ 16	
FLUOROQUINOLONES								
Ciprofloxacin Levofloxacin	– –	– –	–	–	≤ 1 ≤ 2	2 4	≥ 4 ≥ 8	
Gatifloxacin*	–	–	–	–	≤ 2	4	≥ 8	
Lomefloxacin*	–	–	–	–	≤ 2	4	≥ 8	
Norfloxacin* (U)[a]	–	–	–	–	≤ 4	8	≥ 16	
Ofloxacin*	–	–	–	–	≤ 2	4	≥ 8	
FOLATE PATHWAY ANTAGONISTS								
Trimethoprim-sulfamethoxazole	–	–	–	–	≤ 2/38	–	≥ 4/76	
Sulfonamides (U)[a]	–	–	–	–	≤ 256	–	≥ 512	
PHENICOLS								
Chloramphenicol*	–	–	–	–	≤ 8	16	≥ 32	**(6)** Not routinely reported on organisms isolated from the urinary tract.

Abbreviations: CAMHB, cation-adjusted Mueller-Hinton broth; I, intermediate; MHA, Mueller-Hinton agar; MIC, minimal inhibitory concentration; QC, quality control; R, resistant; S, susceptible; U, urine.
Symbol: *, designation for "Other" agents that are not included in Tables 1 but have established clinical breakpoints.

Table 2B-5. Non-Enterobacterales (Continued)

Footnote

a. Report only on organisms isolated from the urinary tract.

Reference for Table 2B-5

[1] CLSI. *Methods for Antimicrobial Dilution and Disk Susceptibility Testing of Infrequently Isolated or Fastidious Bacteria.* 3rd ed. CLSI guideline M45. Clinical and Laboratory Standards Institute; 2016.