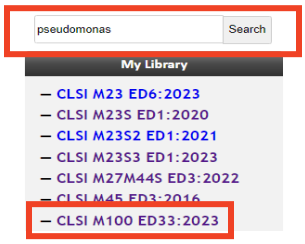
CLSI and MIC Interpretation Tips and Tricks

Interpreting CLSI breakpoints:

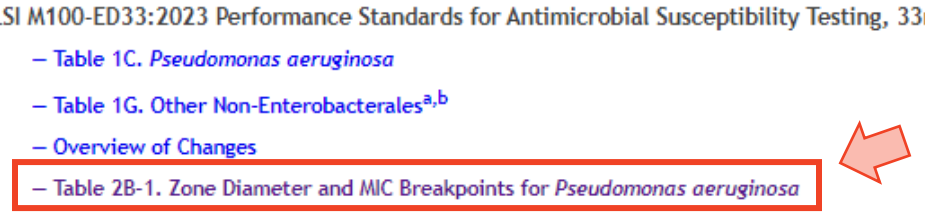
- NMH microbiology lab uses VITEK II for most susceptibility testing. There are a finite number of options on the machine, so some drugs are not routinely tested. Some newer drugs are not approved on the machine yet, so the lab will place an E-test or send out testing to a referral lab.
  - Some susceptibilities are performed via Kirby-Bauer disk diffusion (such as pip-tazo for *Pseudomonas*), due to lab discrepancies with panel testing. The microbiology lab can confer the zone diameter if needed.
- Many susceptibilities are hidden depending on the site for drugs that inadequately penetrate the site of infection. For example, daptomycin and sputum or piperacillin-tazobactam and CSF
- SDD = susceptible dose dependent. This does not mean intermediate; it is susceptible as long as dosed appropriately (doses are in the comments)
- If a susceptibility pattern looks different than expected, occasionally there can be lab errors, please contact ADSP or the microbiology lab for guidance or to rerun susceptibilities
- Pathogen specific comments:
  - *Pseudomonas*: for pan-resistance, cefiderocol and imipenem-relebactam can be requested
  - CRE: for KPC, meropenem-vaborbactam can be requested
    - NDM: ceftazidime-avibactam and aztreonam synergy cannot be tested but should be used first-line
  - See the ADSP Gram-negative infection guideline for more resistance agent recommendations

Locating CLSI Website and Viewing Breakpoints:

1. If you make it to this screen, click guest access



2. You can search a bacteria or fungus from here, the M100 is for bacteria
3. When searching, pathogens are grouped. For example, Enterobacterales includes *E. coli*, *Klebsiella*, *Enterobacter*, etc. but does not include non-Enterobacterales Gram-negative such as *Pseudomonas*, which has its own page.
4. When searching for the breakpoints, you typically want table for: Zone Diameter and MIC Breakpoints



5. At NM, we use MIC breakpoints by broth microdilution or E-test most commonly. You should follow the "Interpretive Categories and MIC Breakpoints, ug/mL":

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*	100 µg	≥ 22	18-21^	≤ 17	≤ 16	32^	≥ 64	(8) Breakpoints for piperacillin (alone or with tazobactam) are based on a piperacillin dosage regimen of 4 g administered every 6 h over 30 minutes or over 3 h.

6. It is important to note the comment section which tells you what dose is required to achieve the breakpoints.
7. For more information on susceptibility testing, see this Primer for Clinicians.
8. Contact your local ADSP pharmacist if you have questions on cultures and susceptibilities.