



Mingling with Micro: Selective/Cascade Reporting

[Using cultures and susceptibilities](#) in addition to disease, patient, and logistical considerations is a cornerstone in selecting appropriate antibiotic therapy. However, potential antibiotic choices are not always reported on susceptibility reports...OR ARE THEY?

What is selective or cascade reporting?

Selective or cascade reporting is a commonly employed microbiology reporting strategy where only a select few “first line” antibiotic susceptibilities are initially reported. Selective reporting rules can be tailored to institutional formularies to improve relevance.¹ The CDC and IDSA recommend selective reporting to help limit overuse of broad-spectrum antimicrobials.^{2,3} When first line antibiotics test resistant, additional susceptibilities are automatically reported or “cascaded.” By routinely hiding broader spectrum agents when narrower spectrum agents are active, providers may be less inclined to select unnecessarily broad antibiotics.

An example of selective reporting is shown below. In Figure 1, a pan-susceptible *E. coli* is depicted. In Figure 2, an ampicillin resistant *E. coli* is depicted therefore cascading to display ampicillin-sulbactam and amoxicillin-clavulanate. Additionally in Figure 2, we see ciprofloxacin is reported as resistant so levofloxacin susceptibilities are displayed. Cefazolin is still active in Figure 2, so we do not see the broader cephalosporin ceftriaxone reported.

Figure 1: Pan-susceptible *E. coli*

	Escherichia coli MIC
Ampicillin	<=8 Susceptible
Cefazolin	<=2 Susceptible
Ciprofloxacin	<=0.25 Susceptible
Gentamicin	<=4 Susceptible
Trimethoprim/Sulfamethoxazole	<=2/38 Susceptible

Figure 2: Ampicillin & Ciprofloxacin Resistant *E. coli*

	Escherichia coli MIC
Amoxicillin/Clavulanate	<=8/4 Susceptible
Ampicillin	> 16 Resistant
Ampicillin/Sulbactam	16/8 Intermediate
Cefazolin	<=2 Susceptible
Ciprofloxacin	2 Resistant
Gentamicin	<=2 Susceptible
Levofloxacin	2 Resistant
Trimethoprim/Sulfamethoxazole	>2/38 Resistant

If an antibiotic is not reported, can I assume it is susceptible?

No! There is no standard cascade reporting structure and every bacteria may have different reporting rules. It is optimal for cascade reporting rules to display all common antimicrobials that test non-susceptible. However, it is better to be safe than sorry and never assume.

Key Takeaway: Collaborating with the microbiology laboratory to develop selective reporting rules is a high value, low effort antimicrobial stewardship strategy for reducing overuse of broad-spectrum antimicrobials. If you do not see susceptibilities for an antibiotic that you want to use, try calling microbiology!

References:

1. Clinical and Laboratory Standards Institute (CLSI). Performance Standards for Antimicrobial Susceptibility Testing, 34th ed. CLSI supplement M100; 2024. <https://clsi.org/all-free-resources/>
2. CDC. Core Elements of Hospital Antibiotic Stewardship Programs. Atlanta, GA: US Department of Health and Human Services, CDC; 2019. Available at <https://www.cdc.gov/antibiotic-use/core-elements/hospital.html>.
3. Barlam TF, Cosgrove SE, Abbo LM, et al. Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America. *Clin Infect Dis*. 2016;62(10):e51-e77. doi:10.1093/cid/ciw118