

Laboratory News

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Updates to Gram-Negative Susceptibility Testing

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Effective October 14, 2024, the Microbiology and Molecular Pathology Laboratory will implement the following updates to gram-negative susceptibility testing:

- An updated and expanded set of antimicrobials will be tested. See attached tables for a full list and cascaded reporting rules.
- ESBL screening will be performed and reported for all *E. coli*, *K. pneumoniae*, and *K. oxytoca* isolates. Due to manufacturer instrument limitations, *P. mirabilis* isolates will be manually screened for ESBL production only if resistant to ceftazidime and/or ceftriaxone.
- Members of the Enterobacterales, *Acinetobacter baumannii*, and *Pseudomonas aeruginosa* with resistance patterns indicative of carbapenemase production will be tested in-house by PCR for the presence of five common carbapenemase genes (KPC, VIM, IMP, NDM, OXA-48), which will significantly reduce turnaround time on carbapenemase testing.
- Any antimicrobial testing Intermediate or Resistant will be reported, regardless of cascading rules.
- This update implements new breakpoints for oral cefazolin. Oral cefazolin susceptibility should be considered the surrogate for susceptibility to cephalexin and all other oral cephalosporins.
 - If an isolate is oral cefazolin resistant, results for oral cefuroxime and oral cefpodoxime will be reported.

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Enterobacterales (other than HECK-Yes organisms¹)

Level 1 Always report	Level 2 Report if all drugs to the left are non-S	Level 3 Report if all drugs to the left are non-S	Level 4 Report if all drugs to the left are non-S	Consult Required
Ampicillin	AMOX/CLAV AMP/SUL PIP/TAZO	Cefepime Ertapenem Meropenem	Ceftazidime/Avibactam Imipenem/Relebactam Meropenem/Vaborbactam	Aztreonam Ceftazidime Ceftolozane/ Tazobactam Minocycline Tigecycline
		Doxycycline		
Cefazolin	Cefpodoxime Cefuroxime			
Cefotaxime Ceftriaxone Cefoxitin	Cefepime Ertapenem Meropenem Doxycycline	Ceftazidime/Avibactam Imipenem/Relebactam Meropenem/Vaborbactam		
Gentamicin	Amikacin Tobramycin			
Ciprofloxacin Levofloxacin				
TMP-Sulfa				
Nitrofurantoin ² (Urine only)				

¹HECK-Yes organisms include: *H. alvei*, *E. cloacae complex*, *C. freundii complex*, *K. aerogenes* & *Y. enterocolitica*

²For Nitrofurantoin S/I/R results will be reported for *E. coli* only. For all other isolates, test performance limitations prevent reporting of Susceptible results, and only Intermediate or Resistant results will be reported. If clinically indicated, contact the laboratory at 715-221-6141.

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Heck-Yes organisms (*H. alvei*, *E. cloacae* complex, *C. freundii* complex, *K. aerogenes* & *Y. enterocolitica*)

Level 1 Always report ¹	Level 2 Report if all drugs to the left are non-S	Consult Required
Cefepime		Minocycline Tigecycline
Ertapenem Meropenem	Ceftazidime/Avibactam Imipenem/Relebactam Meropenem/Vaborbactam	
Gentamicin	Amikacin Tobramycin	
Ciprofloxacin Levofloxacin		
TMP-Sulfa		
Doxycycline		
Nitrofurantoin (Urine only) ²		

¹HECK-Yes organisms have intrinsic resistance to and/or risk of treatment failure with penicillins as well as first, second, and third generation cephalosporins due to the presence of a highly-inducible AmpC β -lactamase ([see IDSA 2024 guidance](#)). These antibiotics will automatically be reported as Resistant.

²For Nitrofurantoin, test performance limitations prevent reporting of Susceptible results, and only Intermediate or Resistant results will be reported. If clinically indicated, contact the laboratory at 715-221-6141.

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P. aeruginosa

Level 1 Always report	Level 2 Report if all drugs to the left are non-S	Level 3 Report if all drugs to the left are non-S
Cefepime Ceftazidime PIP/TAZO	Meropenem	Ceftazidime/Avibactam Imipenem/Relebactam Meropenem/Vaborbactam
Tobramycin	Amikacin (urine)	
Ciprofloxacin Levofloxacin		

Acinetobacter baumannii complex

Level 1 Always report	Level 2 Report if all drugs to the left are non-S	Consult Required
AMP/SUL		Cefotaxime TMP-Sulfa
Cefepime Ceftazidime	Meropenem Minocycline PIP/TAZO	
Ciprofloxacin Levofloxacin		
Gentamicin Tobramycin	Amikacin	
Doxycycline (Urine)		

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Stenotrophomonas maltophilia

Level 1 Always report
Levofloxacin
Minocycline
TMP-Sulfa

Other Non-Enterobacterales (glucose non-fermenting gram-negative bacilli)

Level 1 Always report	Level 2 Report if all drugs to the left are non-S	Level 3 Report if all drugs to the left are non-S
Ceftazidime	Cefepime	Meropenem
Ciprofloxacin Levofloxacin		
Gentamicin	Amikacin Tobramycin	
Minocycline		
PIP/TAZO		
TMP-Sulfa		

Questions

Please contact Dr. Arbefeville or Dr. Wahlig with questions about these changes at 715-221-6141.