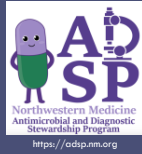




Northwestern Memorial Hospital Antibigrams - 2023

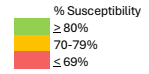
1. [Facility-wide Antibigram](#)
2. [Blood specimen-specific Antibigram](#)
3. [Emergency Department \(ED\)-specific Antibigram](#)
4. [Urine specimen-specific Antibigram](#)
5. [Respiratory specimen-specific Antibigram](#)
6. [MICU-specific Antibigram](#)
7. [Other ICU-specific Antibigram](#)
8. [Immunocompromised host-specific Antibigram](#)

NMH 2023
Facility-Wide
Antibiogram



Isolates	Amikacin	Ampicillin	Ampicillin/Subbactam	Aztreonam	Cefazolin	Cefepime ^a	Ceftazidime	Ceftazidime/Avibactam ^e	Ceftiozaner/Avibactam ^e	Ceftriaxone	Ciprofloxacin	Clindamycin	Daptomycin	Doxycycline	Fluconazole	Gentamicin	Levofloxacin	Linezolid	Meropenem ⁿ	Micafungin	Minocycline	Oxacillin	Penicillin G	Piperacillin/Tazobactam ^l	Sulfamethoxazole/Trimethoprim	Tetracycline	Tobramycin	Vancomycin	Voriconazole		
GRAM POSITIVES																															
Enterococcus faecalis	942	100 ^b											74 ^l					99													99
Enterococcus faecium	401	12 ^b											85 ^k					99												38	
Vancomycin-Resistant Enterococci	271	8 ^b											87 ^k					99													
Staphylococcus coagulase negative	370											55	99					100					34 ^l		68	84 ^l			99		
Staphylococcus aureus	1063										61	99						100				68 ^l		93	86 ^l			100			
Methicillin-resistant Staphylococcus aureus	348										47	99						100						84	70 ^l			100			
Streptococcus pneumoniae (non-meningitis)	63									97							97	87					95		83			100			
Streptococcus pneumoniae (meningitis)	63									84							97	87					68		83			100			
Viridans streptococci	286									97	77						92						92					100			
GRAM NEGATIVES																															
Acinetobacter species	106	73	64			43					49			61				50			77			33	64						
Citrobacter freundii ^d	124	99		75	98						92						94	82	99					78	85	83	96				
Citrobacter koseri	100	100		100	93	100	100			100	99						99	98	100					99	98		99				
Enterobacter cloacae complex ^d	317	97		70	94						86						95	79	96					70	79		93				
Escherichia coli	2720	96	47 ^c	58	90	75	92	92		85	68						87	63	99					95	68		86				
Klebsiella aerogenes ^d	176	97			80	100					95						98	90	99					91	82	90	97				
Klebsiella oxytoca	212	96			90	49	92	94		86	87						88	89	97					91	82	85	87				
Klebsiella pneumoniae	1006	96		72	84	79	87	87		82	78						90	75	97					88	79	77	88				
Morganella morganii	101	95			94		81				79						90	78	100					99	80		90				
Proteus mirabilis	499	98	78 ^c	89	99	63	98	97		96	74						92	74	99					100	79		92				
Pseudomonas aeruginosa	1010	99 ^a			75		93	83	99	98								75	84					88			96				
Serratia species	161	98			96		99	98			88						97	86	98						96		83				
Stenotrophomonas maltophilia ^m	136																69				82				94						
MULTI-DRUG RESISTANT GRAM NEGATIVES																															
Carbapenem Resistant Acinetobacter baumannii (CRAB)	87	67	59							40				59			40				75				59						
Extended-Spectrum β-Lactamase Enterobacterales (ESBL-E)	664	80					98	81		19						61	16	95							31		52				
Candida species																															
Candida albicans	83													95 ⁿ						99									95		
Candida glabrata	63													94 ^o						97											

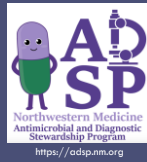
Antibiogram data helps guide clinicians to choose appropriate empiric antibiotics for many infectious syndromes.
See protocol for multi-drug resistant gram-negative agents for guidance.
Page ADSP with questions: 55955



^a %S using MIC breakpoint for urine sources only (≤ 16 mcg/ml). Not recommended for use outside of cystitis caused by *P. aeruginosa*.
^b Results of ampicillin susceptibility tests should be used to predict the activity of amoxicillin and amoxicillin-clavulanate.
^c Ampicillin may be used to predict susceptibility to amoxicillin-clavulanate, ampicillin-sulbactam, and piperacillin-tazobactam among non-β-lactamase-producing enterococci in clinically stable/non-immunocompromised patients.
^d Results of ampicillin can predict results for amoxicillin and amoxicillin-clavulanate.
^e Klebsiella (formerly Enterobacter) aerogenes, Citrobacter freundii, and Enterobacter cloacae complex are intrinsically resistant to ampicillin/sulbactam and cefazolin and are at high-risk for ampC resistance expression.
^f Recommend infectious diseases consultation for ongoing use
^g %S based on MIC ≤ 2 with daptomycin dosage regimen of 6-8 mg/kg every 24 hours
^h %S based on susceptible dose-dependent MIC ≤ 4 with higher daptomycin dosage regimen of 8-12 mg/kg every 24 hours
ⁱ Should be reserved for patients who are intolerant to penicillins and cephalosporins or in patients who are suspected of having a drug-resistant bacteria.
^j For agents with established clinical efficacy, considering site of infection and appropriate dosing, oxacillin-sulbactam, piperacillin-tazobactam can be considered susceptible to the following beta-lactam agents:
 1) β-lactam combination agents (amoxicillin-clavulanate, ampicillin-sulbactam, piperacillin-tazobactam);
 2) Oral cephalosporins (cefazolin, cefdinir, cephalexin, cefepoxide, cefprozil, cefuroxime);
 3) IV cephalosporins (cefazolin, cefepime, ceftiozaner); and 4) carbapenems (ertapenem, imipenem, meropenem)
^k Organisms that are susceptible to tetracycline are also considered susceptible to doxycycline and minocycline. However, some organisms that are intermediate or resistant to tetracycline may be susceptible to doxycycline, minocycline, or both.
^l %S based on susceptible MIC (≤ 2) & susceptible dose dependent MIC (up to 8) for Enterobacterales
^m %S based on susceptible MIC (≤ 8) & susceptible dose dependent MIC (up to 16) for Enterobacterales
ⁿ For moderate to severe *S. maltophilia* infections consider using combination therapy until clinical improvement is observed.
^o %S based on susceptible MIC (≤ 2) & susceptible dose dependent MIC (up to 4) for *C. albicans*

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NMH 2023 Blood-specific Antibiogram



	Isolates	Amikacin	Ampicillin	Ampicillin/Sulbactam	Aztreonam	Cefazolin	Cefepime ^k	Ceftazidime	Ceftazidime/Avibactam ^o	Ceftolozane/Tazobactam ^o	Ceftriaxone	Ciprofloxacin	Clindamycin	Daptomycin	Doxycycline	Gentamicin	Levofloxacin	Linezolid	Meropenem ^h	Oxacillin	Penicillin G	Piperacillin/Tazobactam ^l	Sulfamethoxazole/Trimethoprim	Tetracycline	Tobramycin	Vancomycin	
GRAM POSITIVES																											
Enterococcus faecalis	42		100 ^b												55 ^f			100									98
Enterococcus faecium	45		7 ^b												68 ^g			98									38
Staphylococcus coagulase negative	105												49	99				100		32 ⁱ				52	86 ^l		100
Staphylococcus aureus	110												63	98				100		63 ⁱ				94	90 ^l		100
Methicillin-resistant Staphylococcus aureus	42												38	95				100						88	76 ^l		100
Viridans streptococci	37									89		86					64				81						100
GRAM NEGATIVES																											
Enterobacter cloacae complex ^d	31	90			57		83									63			93	63		87		51	67		87
Escherichia coli	197	93	37 ^c	48	87	63	87	90			80	61						84	56		99		91	59			82
Klebsiella pneumoniae	87	94		62	86	67	78	83			74	66						85	62		95		87	64			84
Pseudomonas aeruginosa	45				73		93	91	100	98		88						77		79		88					98
MULTI-DRUG RESISTANT GRAM NEGATIVES																											
Extended-Spectrum β -Lactamase Enterobacteriales (ESBL-E)	67	72							96	71		12					9		93					30			

Antibiogram data helps guide clinicians to choose appropriate empiric antibiotics for many infectious syndromes.

[See protocol for multi-drug resistant gram-negative agents for guidance](#)

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^b Results of ampicillin susceptibility tests should be used to predict the activity of amoxicillin and amoxicillin-clavulanate.

Ampicillin may be used to predict susceptibility to amoxicillin-clavulanate, ampicillin-sulbactam, and piperacillin-tazobactam among non- β -lactamase-producing enterococci in clinically stable/non-immunocompromised patients.

^c Results of ampicillin can predict results for amoxicillin and amoxicillin-clavulanate.

^d Klebsiella (formerly Enterobacter) aerogenes, Citrobacter freundii, and Enterobacter cloacae complex are intrinsically resistant to ampicillin/sulbactam and cefazolin and are at high-risk for amPC resistance expression.

^e Recommend infectious diseases consultation for ongoing use

^f %S based on MIC ≤ 2 with daptomycin dosage regimen of 6-8 mg/kg every 24 hours

^g %S based on susceptible dose-dependent MIC ≤ 4 with higher daptomycin dosage regimen of 8-12 mg/kg every 24 hours

^h Should be reserved for patients who are intolerant to penicillins and cephalosporins or in patients who are suspected of having a drug-resistant bacteria.

ⁱ For agents with established clinical efficacy, considering site of infection and appropriate dosing, oxacillin-susceptible Staphylococci can be considered susceptible to the following beta-lactam agents:

- 1) β -lactam combination agents (amoxicillin-clavulanate, ampicillin-sulbactam, piperacillin-tazobactam);
- 2) Oral cephalosporins (cefaclor, cefdinir, cephalexin, cefpodoxime, cefprozil, cefuroxime);
- 3) IV cephalosporins (cefazolin, cefepime, ceftriaxone); and 4) carbapenems (ertapenem, imipenem, meropenem)

^j Organisms that are susceptible to tetracycline are also considered susceptible to doxycycline and minocycline. However, some organisms that are intermediate or resistant to tetracycline may be susceptible to doxycycline, minocycline, or both.

^k %S based on susceptible MIC (≤ 2) & susceptible dose dependent MIC (up to 8) for Enterobacteriales

^l %S based on susceptible MIC (≤ 8) & susceptible dose dependent MIC (up to 16) for Enterobacteriales

Abbreviations: %S, percent susceptible; SDD, susceptible-dose-dependent

30 isolate threshold

Blank boxes indicate organism has intrinsic resistance to corresponding antimicrobial or resistance testing is not applicable

When risk for mortality or significant morbidity is high (eg, meningitis, septic shock/critical illness) agents with %S at least 90% should be selected.

Antibiogram Guidance (CLSI M100-Ed34)

% Susceptibility

$\geq 80\%$

70-79%

$\leq 69\%$

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