Northwestern Medicine
Antimicrobial and Diagnostic
Stewardship Program

Northwestern Memorial Hospital Antibiograms - 2023

1. Facility-wide Antibiogram
2. Blood specimen-specific Antibiogram
3. Emergency Department (ED)-specific Antibiogram
4. Urine specimen-specific Antibiogram
5. Respiratory specimen-specific Antibiogram
6. MICU-specific Antibiogram
7. Other ICU-specific Antibiogram
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NMH 2023 Facility-Wide Antibiogram

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	Isolates	Amikacin	Ampicillin	Ampicillin/Sulbactam	Aztreonam	Cefazolin	Cefepime [k]	Ceftazidime	Ceftazidime/Avibactam [e]	Ceftolozane/Tazobactam [e]	Ceftriaxone	Ciprofloxacin	Clindamycin	Daptomycin	Doxycycline	Fluconazole	Gentamicin	Levofloxacin	Linezolid	Meropenem [h]	Micafungin	Minocycline	Oxacillin	Penicillin G	Piperacillin/Tazobactam [l]	Sulfamethoxazole/Trimethoprim	Tetracycline	Tobramycin	Vancomycin	Voriconazole
GRAM POSITIVES																														
Enterococcus faecalis	942		100 [b]											74 [f]					99										99	
Enterococcus faecium	401		12 [b]											85 [g]					99										38	
Vancomycin-Resistant Enterococci	271		8 [b]											87 [g]					99											
Staphylococcus coagulase negative	370												55	99					100				34 [i]		68	84 [j]		99	
Staphylococcus aureus	1063												61	99					100				68 [i]		93	86 [j]		100	
Methicillin-resistant Staphylococcus aureus	348												47	99					100						84	70 [j]		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		83						75		84					88			96		
Serratia species	161	98			96		99	98			89	88					97	86		98						96		83		
Stenotrophomonas maltophilia [m]	136																	69				82				94				
MULTI-DRUG RESISTANT GRAM NEGATIVES																														
Carbapenem Resistent Acinetobacter baumanii (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
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% Susceptibility
≥ 80%
70-79%
≤ 69%

[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.
Ampicillin may be used to predict susceptibiltiy 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, condsidering site of infection and appropriate dosing, oxacillin-susceptble Staphylococci can be considered susceptible to the following beta-lactam agents:
1) β-lactam combination agents (amoxicillin-clavulante, 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 doxycyline, minocycline, or both.
[k] %S based on susceptible MIC (≤ 2) & susceptible dose dependent MIC (up to 8) for Enterobacterales
[l] %S based on susceptible MIC (≤ 8) & susceptible dose dependent MIC (up to 16) for Enterobacterales
[m] For moderate to severe S. maltophilia infections consider using combination therapy until clinical improvement is observed.
[n] %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

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	Isolates	Amikacin	Ampicillin	Ampicillin/Subactam	Aztreonam	Cefazolin	Cefepime [k]	Ceftazidime	Ceftazidime/Avibactam [e]	Ceftolozane/Tazobactam [e]	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 [j]		100
Staphylococcus aureus	110												63	98				100		63 [i]			94	90 [j]		100
Methicillin-resistant Staphylococcus aureus	42												38	95				100					88	76 [j]		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 Enterobacterales (ESBL-E)	67	72							96	71		12					9		93				30			

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[k] %S based on susceptible MIC (≤ 2) & susceptible dose dependent MIC (up to 8) for Enterobacterales
[l] %S based on susceptible MIC (≤ 8) & susceptible dose dependent MIC (up to 16) for Enterobacterales

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)

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