

# Antibiogram 2022

Species with less than 30 isolates, susceptibilities should be interpreted with caution. Grey boxes indicate organism has intrinsic resistance or susceptibilities are not published to corresponding antimicrobial.

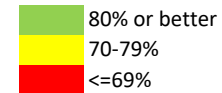
Gram Negative NON-URINE Isolates Inpatient and Emergency Department		Total # Isolates	Ampicillin	Ampicillin-Sulbactam	Piperacillin-Tazobactam	Cefazolin	Ceftriaxone	Ceftazidime	Cefepime	Ertapenem	Meropenem	Levofloxacin	Trimethoprim Sulfamethoxazole	Gentamicin <sup>2,3</sup>	Tobramycin <sup>2,3</sup>
Organisms	# Results	% Susceptibility													
Acinetobacter spp.	7					71%	71%	86%			100%	100%	100%	100%	100%
Citrobacter spp. <sup>1</sup>	10		40%	80%	40%	80%		100%	90%	100%	100%	100%		X	X
Enterobacter spp. <sup>1</sup>	15			93%		87%		93%	93%	93%	93%	80%		X	X
Escherichia coli	126	64%	71%	98%	83%	86%		89%	100%	100%	78%	85%		X	X
Klebsiella spp. <sup>1</sup>	51		65%	92%	78%	92%		96%	100%	100%	98%	90%		X	X
Klebsiella spp excluding K.aerogenes	48		69%	92%	83%	92%		96%	100%	100%	98%	90%		X	X
K. aerogenes	3		0%	100%		100%		100%	100%	100%	100%	100%		X	X
Proteus vulgaris group	1			100%				100%	100%	100%	100%	100%		X	X
Proteus mirabilis	16	79%	100%	100%	79%	100%		100%	100%		75%	88%		X	X
Pseudomonas aeruginosa	35			97%				97%	94%		94%	94%		X	X
Serratia spp.	10			100%		90%		90%	100%	100%	100%			X	X
Stenotrophomonas maltophilia (all locations)	19							32%				79%	100%		

<sup>1</sup>Enterobacter, Klebsiella (formerly Enterobacter) aerogenes, and Citrobacter have the potential to induce AmpC beta-lactamase production and become resistant to 3rd generation cephalosporins, aztreonam, piperacillin-tazobactam while on therapy. Use those agents with caution. Failure rates appear highest with Enterobacter>>Citrobacter. Cefepime and carbapenems appear to be stable. (REF: Tamma, PD et al. IDSA Guidance for treatment of GNR bacteria, 3/31/22)

<sup>2</sup>Gentamicin and Tobramycin should not be used for monotherapy for infections due to Enterobacterales. Current susceptibility breakpoints commercially available do not accurately reflect aminoglycoside activity.

<sup>3</sup>Gentamicin and Tobramycin are no longer recommended for Pseudomonas due recent re-evaluation of breakpoints and pharmacokinetics.

X=not recommended



### Proportion Beta Lactamase Positive

Haemophilus influenzae (n=50) 26%

Fusobacterium (n=10) 0%

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Gram Positive NON-URINE Isolates Inpatient and Emergency Department		Total # Isolates	Penicillin G	Penicillin G (meningitis)	Oxacillin <sup>4</sup>	Ceftriaxone	Ceftriaxone (meningitis)	Clindamycin	Levofloxacin	Trimethoprim Sulfamethoxazole	Vancomycin	Gentamicin synergy	Tetracycline	Erythromycin
Organisms	# Results	% Susceptibility												
Enterococcus spp. <sup>1</sup>	44	95%									95%	88%		
E. faecalis	38	100%									97%	89%		
E. faecium <sup>2</sup>	6	50%									83%	67%		
Streptococcus pneumoniae (all locations) <sup>3</sup>	17	100%	59%		100%	100%	94%	100%	65%	100%				53%
Viridans Strep (includes S.anginosus) <sup>5</sup>	33	91%			100%		X	X		100%				
Streptococcus pyogenes (Group A)	33	100%			100%		58%			100%				55%
Streptococcus agalactiae (Group B)	15	100%			100%		60%			100%				43%
Streptococcus dysgalactiae (Group C/G)	9	100%			100%		67%			100%				63%
Staphylococcus aureus all locations	729			81%			78%		99%	100%			93%	
Inpatient/ED	237			68%			79%		99%	100%			92%	
Outpatient only	487			87%			78%		100%	100%			94%	
Staphylococcus epidermidis	30			43%			73%		*	100%			77%	
Staphylococcus lugdunensis (all locations)	24			100%			100%		*				100%	

<sup>1</sup>Enterococci susceptible to penicillin are predictably susceptible to ampicillin, amoxicillin, ampicillin-sulbactam, amoxicillin-clavulanate and piperacillin-tazobactam.

<sup>2</sup>Among all E. faecium isolates (n=25), 100% were susceptible to daptomycin and 67% were susceptible to linezolid.

<sup>3</sup>CLSI requires publication of two breakpoints for all pneumococcal isolates designated: meningitis and non-meningitis.

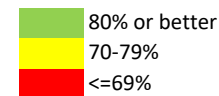
There were 4 blood/CSF & 13 Respiratory/Wound pneumococcal isolates.

<sup>4</sup>Oxacillin results can be applied to other anti-staph penicillins and β-lactam/β-lactamase inhibitors, cephalosporins and carbapenems.

<sup>5</sup>Viridans Strep non-susceptible to penicillin 100% (n=3) were intermediate (MIC 0.25-2.0).

X=not recommended

\*In house testing not available

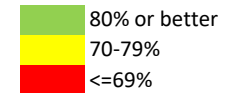


# Antibiogram 2022

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URINE Isolates Inpatient and Emergency Department		Total # Isolates	Penicillin G	Ampicillin	Ampicillin Sulbactam	Oxacillin	Piperacillin-Tazobactam	Cefazolin	Ceftriaxone	Ceftazidime	Cefepime	Ertapenem	Meropenem	Levofloxacin	Trimethoprim Sulfamethoxazole	Vancomycin	Nitrofurantoin	Tetracycline
Organisms	# Results	% Susceptibility																
Acinetobacter species	2			50%					X	X	50%		50%	50%	50%			50%
Citrobacter spp	22					95%		82%		100%	100%	100%	100%	91%	95%		64%	95%
Enterobacter cloacae	19					74%		74%		89%	83%	100%	95%	95%			58%	89%
E.coli	403		65%	69%		98%	88%	91%		93%	100%	100%	100%	80%	81%		99%	77%
Klebsiella spp.																		
Klebsiella excluding K.aerogenes	85			76%		96%	91%	95%		96%	100%	100%	100%	92%	95%		42%	87%
K.aerogenes	6			0%		100%	0%	100%		100%	100%	100%	100%	100%	100%		17%	100%
Proteus spp.																		
P. mirabilis	29		79%	86%		100%	93%	100%		100%	100%			83%	90%			
P. vulgaris group	4					100%				100%	100%	100%	100%	100%	75%			
Pseudomonas aeruginosa	27					81%				96%	93%		85%	78%				
Serratia marcescens	5					100%		100%		100%	100%	100%	100%	80%				
Stenotrophomonas (All Locations)	5									40%				80%	100%			
Enterococcus spp. total	71	90%	93%													99%	100%	28%
E. faecalis	60	98%	100%													100%	100%	27%
E. faecium	11	36%	45%													91%	*	27%
Staphylococcus aureus	42					74%									100%	100%	100%	93%
Staph species not aureus	14					43%									*	100%	100%	100%

Enterococci susceptible to penicillin are predictably susceptible to ampicillin, amoxicillin, ampicillin-sulbactam, amoxicillin-clavulanate and pip/tazo



X=not recommended

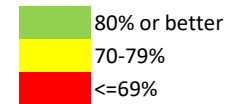
\*In house testing not available

# Antibiogram 2022

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URINE Isolates Outpatient		Total # Isolates	Penicillin G	Ampicillin	Ampicillin Sulbactam	Oxacillin	Cefazolin	Ceftriaxone	Ceftazidime	Cefepime	Meropenem	Levofloxacin	Trimethoprim Sulfamethoxazole	Vancomycin	Nitrofurantoin	Tetracycline
Organisms	# Results	% Susceptibility														
Citrobacter spp.	71			59%		55%	94%				100%	94%	93%		62%	94%
Enterobacter cloacae complex	54						81%				98%	93%	89%		64%	89%
E.coli	1592		67%	71%		92%	94%				100%	85%	83%		100%	81%
Klebsiella spp.																
Klebsiella excluding K. aerogenes	259			79%		88%	94%				100%	95%	92%		54%	88%
K. aerogenes	31			0%		0%	84%				100%	100%	100%		19%	100%
Proteus spp.															X	
P. mirabilis	48		81%	92%		94%	100%					90%	88%			
P. vulgaris group	5					0%	40%					100%	80%			
Ps. Aeruginosa	41								100%	100%	90%	85%				
Serratia marcescens	4							100%			100%	100%	*		X	
Enterococcus spp.	179	100%	100%											100%	99%	25%
E. faecalis	173	100%	100%											100%	99%	23%
E. faecium	6	100%	100%											100%	*	83%
Staphylococcus aureus	94				86%								100%	100%	100%	95%
Staph species not aureus	57				67%								*	100%	100%	79%

Cefepime and Ertapenem not reported for outpatient urines Enterobacterales group



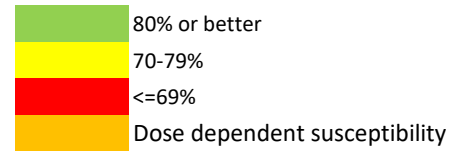
X=not recommended

\*In house testing not performed.

# Antibiogram 2022

Species with less than 30 isolates, sensitivities should be interpreted with caution.

Yeast , All Locations <sup>1</sup>					
	# isolates	Fluconazole	Fluconazole Dose Dependent <sup>3</sup>	Micafungin	Voriconazole
Organisms	# Results	% Susceptibility			
Candida albicans	16	94%	6%	100%	94%
Candida glabrata	5	20%	80%	100%	
Candida krusei <sup>2</sup> (Pichia kudriavzevii)	0	X	X		
Candida tropicalis	1	100%		100%	0%
Candida parapsilosis	1	100%		100%	100%
Overall	23	74%	22%	100%	89% <sup>4</sup>



<sup>1</sup>Testing performed at Mayo Laboratories

<sup>2</sup>Intrinsically resistant to Fluconazole

<sup>3</sup>Infectious Diseases should be consulted to use fluconazole if isolate with dose dependent susceptibility.

<sup>4</sup>No voriconazole interpretive cutoffs for C. glabrata therefore n=18 used for denominator.

X=not recommended

**Isolate sources:** Peritoneal/abdominal n=10,  
Vaginal n=3, Oral n=3, Bone/joint n=1, Blood n=6

## Antibiogram 2022

Summary of Important Resistance Rates <sup>1</sup>		Inpatient/ED				Outpatient			
		Non-urine		Urine		Non-urine		Urine	
Organism Name	Acronym	n	%	n	%	n	%	n	%
Carbapenem Resistant Klebsiella	CRKP	0	0%	0	0%			2	0.7%
Carbapenem Resistant Enterobacter	CRE	1	7%	3	17%			10	18%
Carbapenem Resistant Pseudomonas	CRPA	2	6%	4	15%			4	10%
Extended Spectrum Beta Lactamase (E. coli and Klebsiella) <sup>2</sup>	ESBL	18	10%	38	8%	6	10%	100	5%
Methicillin Resistant Staphylococcus aureus	MRSA	76	32%	11	26%	63	13%	13	14%
Vancomycin Resistant Enterococcus	VRE	2	5%	1	1%			0	0%

<sup>1</sup>Denominator is the total number of each organism found in main antibiogram.

<sup>2</sup>Corrected 2021 ESBL calculation Inpatient Non-Urine: 10%, Inpatient Urine: 5%, Outpatient Urine 4%