

# MercyOne Siouxland Antibigram January through December 2024

## Data-% Susceptible

Antimicrobial Agent		Number of isolates tested	β-Lactams				Cephalosporins				Carbapenems		Aminoglycosides		FQs		Trimethoprim/ Sulfamethoxazole	Nitrofurantoin <sup>(1)</sup>	% MDR <sup>(2)</sup>	
			Ampicillin	Amoxicillin/ Clavulanate	Ampicillin/ Sulbactam	Piperacillin/ Tazobactam	Cefazolin	Ceftazidime	Ceftriaxone	Cefepime	Ertapenem	Meropenem	Gentamicin	Tobramycin	Ciprofloxacin	Levofloxacin			ESBL <sup>(3)</sup>	CP-CRE <sup>(4)</sup>
Gram Negative Bacilli			Am	Aug	A/S	P/T	Cfz	Caz	Cax	Cpe	Etp	Mer	Gm	To	Cp	Lvx	T/S	Fd		
Enterobacterales	Antibiotic abbreviation		Am	Aug	A/S	P/T	Cfz	Caz	Cax	Cpe	Etp	Mer	Gm	To	Cp	Lvx	T/S	Fd		
	<i>Escherichia coli</i>	1524↑	51	86	60	99	81	87	87	89	99	99	89	89	75	78	75	97 (1389)	11 (170)	0.07 (1:NDM)
	<i>Enterobacter cloacae</i>	147	R	R	R	88	R	65↓	76↑	90	91	100	97	95	88	95	90	28 (69)		
	<i>Klebsiella (Enterobacter) aerogenes</i>	45↓	R	R	R	93	R	76	76↑	98	100	100	100	100	93	100	96	34↑ (32)		
	<i>Klebsiella pneumoniae</i>	293	R	93	85	98	87	88	88	89	98	99	94	93	86	93	85	47 (251)	10 (30)	0.68/0.34 (2:NDM/1:KPC)
	<i>Klebsiella oxytoca</i>	108	R	94	75	97	46↓	96	94	96	100	100	97	96	93	97	94	93↑ (70)	3.7 (4)	
	<i>Proteus mirabilis</i>	249	78	94	91	99	84	91	88	91	99	99	89	89	51	57	70	R	8.8 (22)	0.4 (1:IMP)
	<i>Citrobacter freundii</i>	51	R	R	R	94	R	82	82	100	100	100	100	100	88	88	94	92 (40)		
	<i>Morganella morganii</i>	66	R	R	*	100	R	83	82	100	100	100	85	89	71	73	71	R		
	<i>Serratia marcescens</i>	55↑	R	R	R	91	R	60↑	73	100	98	98	100	93	87	93	96	R		
Non-Enterobacter	<i>Acinetobacter baumannii</i>	42↑	R	R	90	*	*	95	100	95	R	100	93	95↑	90	95	88			
	<i>Pseudomonas aeruginosa</i>	341	R	R	R	96	*	92	R	92	R	94	86	98	85	81	R			
	<i>Stenotrophomonas maltophilia</i>	27↓	R	R	R	R	*	*	R	*	R	R	R	R	*	85↑	96			

**NOTE:** Asterisk (\*) indicates drug not tested or drug not indicated; **R** indicates intrinsic resistance; FQs=fluoroquinolones; ↓ or ↑ indicates ≥10% change from previous year. Cell color indicates level of susceptibility: RED ≤60%, YELLOW 61-80%, GREEN ≥81%

The percent susceptible (%S) for each organism/antimicrobial combination was generated by including the first isolate of the organism encountered on a given patient per reporting period per CLSI guidelines. Microscan broth microdilution MIC method for antimicrobial susceptibility testing was performed at Dunes Laboratory.

*Haemophilus influenzae* isolates have limited data due to inconsistent testing supplies. Twenty-two (23) *Haemophilus influenzae* isolates from respiratory and other sterile sources were tested for β-lactamase; 3 tested β-lactamase positive.

<sup>(1)</sup> Nitrofurantoin results are only reported on urinary isolates. The number of isolates tested are in parenthesis.

<sup>(2)</sup> The last two columns reflect the percentage of isolates showing a multiple drug resistant strain (MDR). The number of isolates are in parenthesis.

<sup>(3)</sup> Overall percentage and number of isolates in parenthesis showing Extended Spectrum Beta Lactamase production.

<sup>(4)</sup> Overall percentage and number of isolates in parenthesis meeting the definition Carbapenemase Producing (CP)- Carbapenem Resistant Enterobacterales (CRE): An isolate from the Enterobacterales group that is intermediate or resistant to one or more third generation cephalosporin and at least one carbapenem. Suspected CP-CRE isolates were sent to Iowa State Hygienic Laboratory for carbapenemase confirmation.

## Data-% Susceptible

Antimicrobial Agent  Gram Positive Cocci	Number of isolates tested	β-Lactams					Cephalosporins			Carba	FQs		Others								Inducible Clindamycin Resistance <sup>(2)</sup>
		Amoxicillin/Clavulanate	Ampicillin	Oxacillin	Penicillin	Piperacillin/Tazobactam	Cefazolin	Ceftriaxone	Ceftaroline	Meropenem	Ciprofloxacin	Levofloxacin	Tetracycline	Vancomycin	Clindamycin	Erythromycin	Daptomycin	Linezolid	Trimethoprim/Sulfamethoxazole	Nitrofurantoin <sup>(1)</sup>	
Antibiotic abbreviation		Aug	Am	Ox	P	P/T	Cfz	Cax	Cpt	Mer	Cp	Lvx	Te	Va	Cd	E	Dap	Lzd	T/S	Fd	Icd
<i>Enterococcus faecalis</i>	596↑	*	99	*	99	*	R	R	R	*	69	78	*	100	R	*	99	99	R	99 (414)	*
<i>Enterococcus faecalis</i> (VRE)	10	*	100	*	100	*	R	R	R	*	*	*	*	R	R	*	100	100	R	100 (4)	*
<i>Enterococcus faecium</i>	61↓	*	26↓	*	23↓	*	R	R	R	*	25↓	31	*	100	R	*	79	97	R	44↓ (45)	*
<i>Enterococcus faecium</i> (VRE)	34↓	*	0	*	0	*	R	R	R	*	0	0	*	R	R	*	85	100	R	61 (23)	*
<i>Staphylococcus aureus</i> (MSSA) <sup>(3)</sup>	414	100	0	100	0	98	99	99	100	100	88	91	91	100	79	72	99	99	100	98 (53)	15 (61)
<i>Staphylococcus aureus</i> (MRSA) <sup>(3)</sup>	301	0	0	0	0	*	0	0	99	0	24	27	91	100	56	9	99	100	94	98 (57)	12 (36)
<i>Staphylococcus lugdunensis</i> <sup>(3)</sup>	30↓	93	0	93	0	100	93	93	*	92	97	100	100	100	92↑	88	100	100	100	100 (3)	3 (1)
<i>Staphylococcus epidermidis</i> <sup>(3)</sup>	298↓	36	0	36	0	100	36↑	36↑	*	38↑	62	62	80	100	56	31	100	99	52	100 (104)	3 (8)
<i>Streptococcus pneumoniae</i> <sup>(4)</sup>	26	100	*	*	100	*	*	100	*	96↑	*	100	96↑	100	96	78↑	*	*	87↑		*

**NOTE:** Asterisk (\*) indicates drug not tested or drug not indicated; **R** indicates intrinsic resistance; FQs = fluoroquinolones; ↓ or ↑ indicates ≥10% change from previous year.

Cell color indicates level of susceptibility: RED <60%, YELLOW 61-80%, GREEN >81%

The percent susceptible (%S) for each organism/antimicrobial combination was generated by including the first isolate of the organism encountered on a given patient per reporting period per CLSI guidelines. Microscan broth microdilution MIC method for antimicrobial susceptibility testing performed at Dunes Laboratory.

<sup>(1)</sup>Nitrofurantoin results are only reported on urinary isolates. The number of isolates tested are in parenthesis.

<sup>(2)</sup>The last column reflects the overall percentage and number of isolates in parenthesis showing inducible clindamycin resistance (Icd). The number of isolates are in parenthesis.

Beta hemolytic streptococci isolated from blood cultures tested for inducible clindamycin resistance: *Streptococcus pyogenes* (Grp A Strep) - 2 of 4 isolates, *Streptococcus agalactia* (Grp B Strep) - 0 of 3 isolates, *Streptococcus* Grp C - 0 of 1 and *Streptococcus* Grp G - 1 of 1 inducible clindamycin resistance.

<sup>(3)</sup>For *Staphylococcus* spp: clindamycin and erythromycin are reported for isolates from non-urine sources.

<sup>(4)</sup>*Streptococcus pneumoniae* : Fourteen isolates were from blood sources; all were 100% susceptible to penicillin, ceftriaxone and cefotaxime.

\*These statistics are intended solely as a GUIDE to choosing appropriate antimicrobial therapy.

\*The greater the number of organisms tested, the more valid (accurate) the percentages of susceptibility become. If less than 30 isolates are tested results may not be statistically valid.

## 2024 Candida Isolates

Candida spp. Specimen Source	Number of isolates per source	C. albicans	C. glabrata	C. parapsilosis	C. dubliniensis	C. krusei	C. lusitanae	C. tropicalis	C. guilliermondii	C. kefyr
<b>Respiratory</b> (Lower resp and branch collections)	<b>39↑</b>	29↑	6	*	1	1	*	2	*	*
<b>Urine</b> (sterile/invasive collection/catheter)	<b>213↑</b>	130↑	53↑	8	4	3	1	10↑	1	3
<b>Blood</b> (blood culture and catheter tip)	<b>9↑</b>	4	2	1	1	*	*	1	*	*
<b>Other</b> (Tissue, Sterile fluid, Abscess)	<b>34↑</b>	22↑	6	5	*	1	*	*	*	*
<b>Total number of isolates</b>	<b>295↑</b>	185 (62%)	67 (22%)	14 (4.7%)	6 (2.0%)	5 (1.7%)	1 (0.3%)	13 (4.4%)	1 (0.3%)	3 (1.0%)

**NOTE:** Number of isolates were generated using the first isolate reported per patient and source of collection in 2024. Arrow ↓ or ↑ indicates  $\geq 10\%$  change from previous year. Asterisk (\*) indicates no isolates recorded.

***Candida auris* surveillance:** MercyOne Siouxland Microbiology Department follows the CDC algorithm to identify *Candida auris* based on the phenotypic identification method (API 20C) for *Candida* identification on isolates from blood, normally sterile body sites, invasive collection urines, lower respiratory collections. Any isolate that identifies as *Rhodotorula glutinis* (without characteristic red color present), *Candida sake* or *Candida* spp. using the API 20C method would be suspected as a possible *Candida auris* and is sent to the State Hygienic Laboratory to confirm the identification.