

# MercyOne Siouxland Antibioqram January through December 2023

## Data-% Susceptible

Antimicrobial Agent		Number of isolates tested	β-Lactams				Cephalosporins				Carbapenems		Aminoglycosides		FQs				% MDR <sup>(2)</sup>	
			Ampicillin	Amoxicillin/Clavulanate	Ampicillin/Sulbactam	Piperacillin/Tazobactam	Cefazolin	Ceftazidime	Ceftioxone	Cefepime	Ertapenem	Meropenem	Gentamicin	Tobramycin	Ciprofloxacin	Levofloxacin	Trimethoprim/Sulfamethoxazole	Nitrofurantoin <sup>(1)</sup>	ESBL <sup>(3)</sup>	CRE <sup>(4)</sup>
Gram Negative Bacilli		Antibiotic abbreviation	Am	Aug	A/S	P/T	Cfz	Caz	Cax	Cpe	Etp	Mer	Gm	To	Cp	Lvx	T/S	Fd		
Enterobacterales	<i>Escherichia coli</i>	1370	53	85	60	98	83	88	88	90	99	99	91	90	75	79	73	98 (1213)	10 (135)	0.07 (1:NDM)
	<i>Enterobacter cloacae</i>	159	R	R	R	81	R	73↓	62↓	87	83↓	99	98	94	91	94	90	24 (68)		0.6 (1:KPC)
	<i>Klebsiella (Enterobacter) aerogenes</i>	50↑	R	R	R	90↑	R	76	66	94	94	100	98	98	88	92	98	29 (34)		
	<i>Klebsiella pneumoniae</i>	298	R	94	88	98	90	91	91	92	99	100	96	95	87	95	86	48 (24)	7 (25)	
	<i>Klebsiella oxytoca</i>	104↑	R	88	71	94	54↑	93	94	95	100	100	98	97	90	95	92	82 (60)	5 (5)	
	<i>Proteus mirabilis</i>	248	81	94	90	100	86	93	92	93	100	100	93	91	56	60	74	R	7 (17)	0.4 (1:IMP)
	<i>Proteus vulgaris</i>	32	R	94	91	100	R	100	62	100	100	100	100	100	97	97	91	R		
	<i>Citrobacter freundii</i>	50	R	R	R	96	R	86↑	82	100	96	100	100	100	92	94	92	97 (30)		
	<i>Morganella morganii</i>	72↑	R	R	*	100	R	90	88	100	100	100	82	94	65	65	72	R		
	<i>Serratia marcescens</i>	42↓	R	R	R	86	R	52↓	67	100	100	100	100	90	95↑	100↑	100	R		
	<i>Providencia spp.</i>	39↓	R	28↑	49	95	R	74	95	97	97	97	72	74	69	72	79	R		2.6 (1:IMP)
Non-Enterobacter	<i>Acinetobacter baumannii</i>	28↓	R	R	82↓	*	*	100	100	100	R	96	96	82↓	96	96	93			
	<i>Pseudomonas aeruginosa</i>	318	R	R	R	98	*	96	R	95	R	89	89	98	88	85	R			
	<i>Stenotrophomonas maltophilia</i>	34↑	R	R	R	R	*	*	R	*	R	R	R	R	*	76	97			

**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 (22) *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>	536↑	*	99	*	99	*	R	R	R	*	71	80	*	100	R	*	100	99	R	100 (351)	*
<i>Enterococcus faecalis</i> (VRE)	10	*	100	*	100	*	R	R	R	*	*	*	*	R	R	*	100	100	R	100↑ (6)	*
<i>Enterococcus faecium</i>	76↑	*	37	*	34	*	R	R	R	*	33↑	36↑	*	100	R	*	78	97	R	51 (53)	*
<i>Enterococcus faecium</i> (VRE)	71↑	*	0	*	0	*	R	R	R	*	0	0	*	0	R	*	85	100	R	59 (37)	*
<i>Staphylococcus aureus</i> (MSSA) <sup>(3)</sup>	430	100	0	100	0	99	100	100	100	100	89	92	93	100	76	68	100	99	99	100 (40)	16 (68)
<i>Staphylococcus aureus</i> (MRSA) <sup>(3)</sup>	287↓	0	0	0	0	*	0	0	99	0	26	28	91	100	58	11	99	99	94	100(41)	10 (28)
<i>Staphylococcus lugdunensis</i> <sup>(3)</sup>	41	93	0	93	0	100	93	93	*	94	95	95	90	100	79	82↑	100	100	98	100 (7)	10 (4)
<i>Staphylococcus epidermidis</i> <sup>(3)</sup>	364	28	0	28	0	100	28	28	*	29	57	57	81	100	55	28	99	99	51	100 (119)	3 (10)
<i>Streptococcus pneumoniae</i> <sup>(4)</sup>	23↓	100	*	*	95	*	*	100	*	75↓	*	100	85	100	90	60	*	*	75		*

**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) - 0 of 5 isolates, *Streptococcus agalactia* (Grp B Strep) - 0 of 5 isolates, *Streptococcus* Grp C - 0 of 2 and *Streptococcus* Grp G - 0 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* : Four 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.

## 2023 Candida Isolates

Candida spp. Specimen Source	Number of isolates per source	C. albicans	C. glabrata	C. parapsilosis	C. dubliniensis	C. krusei	C. lusitaniae	C. tropicalis	Candida Species
<b>Respiratory</b> (Lower resp and branch collections)	<b>29↓</b>	20	7	*	*	1	*	*	1
<b>Urine</b> (sterile/invasive collection/catheter)	<b>120↑</b>	72	33	5	1	2	1	4	2
<b>Blood</b> (blood culture and catheter tip)	<b>7</b>	3	2	1	1	*	*	*	*
<b>Other</b> (Tissue, Sterile fluid, Abscess)	<b>24</b>	16	4	3	1	*	*	*	*
<b>Total number of isolates</b>	<b>180↑</b>	111 (62%)	46 (26%)	8 (4.4%)	3 (1.7%)	3 (1.7%)	1 (0.6%)	4 (2.2%)	3 (1.7%)

**NOTE:** Number of isolates were generated using the first isolate reported per patient and source of collection in 2023. Arrow ↓ or ↑ indicates  $\geq 10\%$  change from previous year.

**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.