

Only add vancomycin if MRSA coverage is warranted due to previous respiratory isolation or at risk for MRSA infection or recent hospitalization

Antimicrobials Restrictions Policy

Restriction of the use of certain antimicrobial agents based on indication, spectrum of activity, potential for serious adverse effects, or associated toxicities can ensure appropriate use of therapy. By ensuring the appropriate use, the emergence of multi-resistant organisms may be minimized while achieving therapeutic goals and reducing healthcare costs.

See the policy for details on restriction criteria for the following:

- Aztreonam
- Ceftaroline
- Ceftazidime/avibactam
- Cefiderocol
- Ceftolozane/tazobactam
- Colistimethate
- Daptomycin
- Doxycycline
- Ertapenem
- Fidaxomicin
- Fluoroquinolones
- Fosfomycin
- Imipenem/cilastatin
- Isavuconazole
- Linezolid
- Meropenem
- Micafungin
- Minocycline IV
- Piperacillin/tazobactam
- Posaconazole
- Sulbactam/durlobactam
- Tigecycline
- Voriconazole

Pre-Op Antimicrobial Prophylaxis Recommendations

SURGERY TYPE	FIRST CHOICE	ALTERNATIVE
Cardiac, Non-cardiac Thoracic, Vascular	Cefazolin* + Vancomycin 15mg/kg**	Vancomycin 15mg/kg
Neurosurgical	Cefazolin* + Vancomycin 15mg/kg**	Vancomycin 15mg/kg
Orthopedic	Cefazolin* + Vancomycin 15mg/kg**	Vancomycin 15mg/kg
Head and Neck	Cefazolin* + Metronidazole	Clindamycin
Gastroduodenal, Esophageal, Hernia Repair, PEG Placement	Cefazolin* + Vancomycin 15mg/kg**	Vancomycin 15mg/kg + Gentamicin
Colon and Abdominal/ General	Cefazolin* + Metronidazole OR Cefazolin*	Levofloxacin + Metronidazole
Gynecological	Cefazolin*	Vancomycin 15 mg/kg + Gentamicin
Urological	Cefazolin* OR Cefazolin* + Metronidazole OR Cefazolin* + Gentamicin	Levofloxacin OR Vancomycin 15mg/kg ± Gentamicin

*Recommended dose is 2 grams in adult patients (3 grams ≥ 120 kg)

** If known MRSA colonization

Risk Factors for MRSA Infection

HOSPITAL SETTING	COMMUNITY SETTING
Recent antibiotic exposure	History of skin trauma
Hemodialysis/Peritoneal Dialysis	Poor personal hygiene
Indwelling vascular catheter	Illicit IV drug use
Diabetes mellitus	Exposure to crowded environments (prisons, day care centers and military quarters)
Immune system dysfunction	
Recent surgical procedures	
Recent infection/colonization with MRSA	

Shorter Duration of Antibiotic Therapy

INFECTION	OLD	NEW
Community Acquired Pneumonia	7 to 14 Days	5 Days
Ventilator Associated Pneumonia	10 to 15 Days	≤ 8 Days
Pyelonephritis	10 to 14 Days	5 to 7 Days
Intra-abdominal Infection	10 Days	4 Days
Cellulitis	10 Days	5 Days
Acute Bacterial Sinusitis	10 Days	5 Days
Acute Exacerbation of Chronic Bronchitis and COPD	≥ 7 Days	≤ 5 Days
Neutropenic Fever	Until ANC > 500	Afebrile x 72 hours

Verigene Resistance Markers

ORGANISMS	RESISTANCE GENE	INTERPRETATION
Staphylococcus aureus*	None	None
	MecA	Methicillin Resistance
S. epidermidis	None	None
	MecA	Methicillin Resistance
Enterococcus faecalis OR E. faecium	None	None
	Van A or Van B	Vancomycin Resistance
Escherichia coli, Klebsiella pneumoniae, Klebsiella oxytoca	None	None
	CTX-M	ESBL Producing Organism*
	KPC, NDM, OXA or VIM	CRE/MDR Organism*
Proteus sp.	None	None
	CTX-M	ESBL Producing Organism*
Pseudomonas aeruginosa	None	None
	IMP, KPC, NDM, OXA or VIM	CRPA/MDR Organism*
Acinetobacter sp.	None	None
	IMP or OXA	CRAB/MDR Organism*
Enterobacter sp.	None	None
	CTX-M	ESBL producing organism*
	KPC, NDM, IMP or VIM	CRE/MDR Organism*

*ID Consult Strongly Recommended

Antimicrobial Guideline

Approved by the Antimicrobial Stewardship Committee
& Infection Control Committee

2025 Recommended Empiric Antimicrobial Therapy of Selected Infections in Adults Requiring Hospitalization

INFECTION	1ST LINE	ALTERNATIVE / ALLERGY
Community Acquired Pneumonia	Ceftriaxone + Azithromycin	Levofloxacin*
UTI, Uncomplicated	Nitrofurantoin**	Cephalexin
UTI, Complicated	Ceftriaxone	Ciprofloxacin*
Sepsis of Unknown Etiology	Cefepime ± Vancomycin	Levofloxacin* ± Vancomycin
Intra-Abdominal Sepsis	Ceftriaxone + Metronidazole	Ciprofloxacin* + Metronidazole
Suspected or confirmed C. difficile infection	Vancomycin PO	Fidaxomicin*
Bacterial Meningitis	Ceftriaxone + Vancomycin ± Ampicillin	Ceftriaxone + Vancomycin ± Bactrim
Health Care Associated Meningitis	Cefepime + Vancomycin ± Ampicillin	Meropenem* + Vancomycin
Pelvic Inflammatory Disease	Cefoxitin + Doxycycline	Clindamycin + Gentamicin
Cellulitis	Ceftriaxone ± Clindamycin	Vancomycin OR Clindamycin
Cellulitis, Complicated OR Diabetic Foot Ulcer	Ceftazidime ± Clindamycin OR Metronidazole	Ciprofloxacin* ± Vancomycin
Febrile Neutropenia (ANC < 500) based on source and MRSA risk	Cefepime ± Metronidazole ± Vancomycin	Aztreonam* ± Metronidazole ± Vancomycin

* Restrictions for use may apply

** Avoid use in geriatric patients and CrCl less than 30 mL/min

Ensuring patients receive the right antibiotic, at the right dose, at the right time, and for the right duration reduces mortality, risk of Clostridium difficile-associated diarrhea, hospital stays, overall antimicrobial resistance within the facility, and costs.

St. Joseph's Medical Center - Stockton
Antibiogram 01/01/2024 - 12/31/2024

		Penicillins					Cephalosporins					Carbapenems			Aminoglycosides			Fluoroquinolones		Other								
Percent (%) susceptible	# Tested (n)	Ampicillin	Oxacillin	Penicillin	Piperacillin/Tazo	Amp/Sulbactam	Cefazolin	Cefepime	Cefotaxime	Ceftazidime	Ceftriaxone	Ertapenem	Imipenem	Meropenem	Amikacin	Gentamicin	Tobramycin	Ciprofloxacin	Levofloxacin	Clindamycin	Erythromycin	Linezolid	Rifampin	Sulfa/Trimeth	Daptomycin	Tetracycline	Vancomycin	Nitrofurantoin*
Gram negative rods:																												
Acinetobacter baumannii complex	91					49		36		34	22			36	65	48	60	24	26					65		33		
Citrobacter freundii complex	86	0			78	0	0	99		63	60	100			100	93	92	79	87					84				98
Citrobacter koseri	53	0			96	98	92	100		100	98	98			100	100	96	98	100					100				
Enterobacter cloacae complex	192	0			70	1	0	83		67	64	79			99	96	96	91	94					84				39
Escherichia coli	3512	44			96	54	65	78		76	77	99	99		100	88	86	58	68					69				98
Klebsiella aerogenes	77	0			77	0	0	94		71	73	96			100	99	99	97	100					97				38
Klebsiella oxytoca	99	0			86	43	24	81		80	80	98			100	91	83	79	88					81				87
Klebsiella pneumoniae	936	0			89	67	69	76		76	76	95	89		99	88	87	72	77					78				51
Morganella morganii	148	0			98	27	0	99		82	86	99			100	83	91	61	61					68				0
Proteus mirabilis	662	67			100	78	9	87		87	86	100			99	81	80	61	63					73				0
Providencia rettgeri	56	0			100	61	0	79		98	77	96			100	81	89	71	71					73				
Providencia stuartii	59	0			97	14	0	90		74	58	100			100	0	0	27	31					69				
Pseudomonas aeruginosa	718				79			85		82			79	85	100	0	0	76	74									
Serratia marcescens	124	0			97	0	0	100		98	90	99			100	100	89	94	97									0
Stenotrophomonas maltophilia	98																		87					99				
Gram positive cocci:																												
Enterococcus faecalis	1144	99																*66	*72			99			100		88	99
Enterococcus faecium	244	74																	*19			95			99		45	92
Staphylococcus aureus	1034		47													87		56	54	62	41	100	98	96	100	72	100	100
Staphylococcus epidermidis	234		40													93		62	64	55	26	100	95			72	100	99
Streptococcus agalactiae	37			100				100	100		100									41	32						100	
Streptococcus anginosus	33			97				100	100		100									75							100	
Streptococcus mitis/oralis	32			84				100	100		100									93							100	
Streptococcus pneumoniae	43			77					95		98								100		67			67		81	100	

* Urinary Tract isolates only

Non urine

 >= 5% more resistant 2024 than 2023

 >= 5% more sensitive 2024 than 2023

NOTES:

A. Some strains of *Escherichia coli*, *Klebsiella sp.*, and *Proteus mirabilis* can produce Extended Spectrum Beta Lactamases (ESBLs). These strains should be considered resistant to all penicillins, cephalosporins, and monobactams. Treatment with a carbapenem is recommended.

B. Emerging resistance in Gram negative rods due to Carbapenemase and Metallo Beta Lactamase production is increasing world wide. These strains should be considered resistant to all penicillins, cephalosporins, carbapenems, and aztreonam. Resistance may also be demonstrated to the aminoglycosides and fluoroquinolones. Infectious Disease consult is recommended.

C. Clinical outcomes for aminoglycosides as monotherapy for systemic *Pseudomonas aeruginosa* infections are limited and have resulted in worse treatment outcomes (for infections outside of the urinary tract) compared with other therapies. Combination therapy for most indications other than urinary tract infections should be considered. Consultation with an infectious disease specialist is recommended.

D. Levofloxacin should not be used alone for antimicrobial therapy treatment for *Stenotrophomonas*

E. Some Enterobacterales (most commonly seen with *Citrobacter freundii* complex, *Enterobacter cloacae* complex and *Klebsiella aerogenes*) may develop resistance during therapy with 3rd-generation cephalosporins as a result of derepression of AmpC β -lactamase. Isolates initially susceptible may become resistant within a few days after initiation of therapy, so 3rd-generation cephalosporins are NOT recommended for these cases of bacteremia or invasive infection.

F. 53% of the *Staphylococcus aureus* isolates are MRSA (methicillin resistant). Susceptibility results for both hospital-acquired and community acquired MRSA isolates are combined on this antibiogram. Community acquired isolates tend to be susceptible to a greater number of antibiotics than hospital acquired MRSA strains, but they can be associated with more virulent infections.

G. 18% of *Haemophilus influenzae* are β -lactamase positive.

H. Per SJMC Infection Control Dept. policy for Multi-Drug Resistant Organisms: In addition to appropriate antibiotic therapy, patients must be placed in CONTACT ISOLATION PRECAUTIONS.