



2019-2020

Antimicrobial Therapy Guide

Includes 2018 Antibigrams for all Associated Facilities

Antimicrobial Stewardship Program (ASP) Team

Physician Leaders
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Introduction

The global rise in antibiotic resistance coupled with the limited development of new agents has presented new challenges for clinicians treating patients with bacterial infections. For this reason, antimicrobial stewardship has become a key strategy for healthcare institutions to help curb the rise in antibiotic resistance. It has been estimated that approximately 50% of antimicrobial use in the United States is inappropriate. Overuse and misuse of antibiotics not only contributes to an increased cost of care, but may also result in unintended consequences, such as emergence of resistance or development of *C. difficile* infection.

In an effort to address these challenges, the Antimicrobial Stewardship Program (ASP) Team at Providence Little Company of Mary Torrance (PLCM) and San Pedro have developed guidelines to assist clinicians with the selection of optimal antibiotic therapy for commonly encountered infectious disease syndromes. These guidelines are based on national practice guidelines, current literature, ecological data from the PLCM Microbiology Lab, and the expert opinion of infectious diseases physicians at PLCM.

It is important to recognize that this guidance document is not intended to be entirely comprehensive, and deviations from these guidelines may occasionally be warranted based on clinical judgment and individual patient-specific factors. In such scenarios, there must be documentation in the patient's chart of why alternative antibiotic regimens are selected. This will allow us to remain informed about new practices and alert us of potential opportunities to update and improve these guidelines.

EMPIRIC ANTIBIOTIC GUIDELINES 2019-2020

May not apply to SACC patients so please review previous cultures and the most current antibiogram for guidance

Source Infection	First Line Recommendations	For PCN or Cephalosporin Allergic Patients
Community Acquired	Ceftriaxone 1 g IV q24h +Azithromycin 500mg IV q24h	Levofloxacin 750 mg IV q24h
Pneumonia (CAP)	<i>ADD</i> Metronidazole 500 mg IV q8h for suspected aspiration * <i>ADD</i> Vancomycin 1g if suspecting MRSA	<i>ADD</i> Metronidazole 500 mg IV q8h for suspected aspiration * <i>ADD</i> Vancomycin if suspecting MRSA
Healthcare Associated Pneumonia (HCAP)	Vancomycin 1gm IV <i>AND</i> Cefepime 2g IV q12h Or Ceftazidime 1g IV q8h + <i>AND</i> Levofloxacin 750 mg IV q24h <i>ADD</i> Metronidazole 500 mg IV q8h for suspected aspiration *	Vancomycin 1g IV <i>AND</i> Aztreonam 1g IV q8h <i>AND</i> If high risk for multi-drug resistance <i>ADD</i> : Tobramycin 3 mg/kg IV <i>ADD</i> Metronidazole 500 mg IV q8h for suspected aspiration *
Urinary Tract Infection	Ceftriaxone 1g IV q24h Or Ceftazidime 1g IV q8h if Pseudomonas suspected	Levofloxacin 500mg IV q24h
Intra-abdominal	Ceftriaxone 1g IV q24h + Metronidazole 500 mg IV q8h * <i>ADD</i> Vancomycin 1g if suspecting MRSA <i>ADD</i> Vancomycin 1g if suspecting MRSA	Vancomycin 1g IV + Metronidazole 500mg IV q8h * + Levofloxacin 500 mg IV q24h <i>ADD</i> Vancomycin 1g if suspecting MRSA
Skin/Soft Tissue Infections	Vancomycin 1g IV + Ceftriaxone 1g IV q24h If suspecting TSS or necrotizing fasciitis <i>ADD</i> Clindamycin 600mg IV q8h	Vancomycin 1g IV + Levofloxacin 500mg IV q24h If suspecting TSS or necrotizing fasciitis <i>ADD</i> Clindamycin 600mg IV q8h
Dialysis patients	Vancomycin 1g IV + Ceftazidime 1g q24h	Vancomycin 1g IV + Gentamicin 3mg/kg IV
Meningitis	Ceftriaxone 2g IV q12h + Vancomycin 1g IV <i>ADD</i> Ampicillin 2g IV q6h if >50yo <i>ADD</i> Acyclovir 10mg/kg IV q8h if suspect herpes.	Levofloxacin 750 mg IV q24h + Vancomycin 1g IV <i>ADD</i> Acyclovir 10mg/kg IV q8h if suspect herpes. <i>ADD</i> Acyclovir 10mg/kg IV q8h if suspect herpes.
Febrile Neutropenia	Cefepime 2g IV q8h OR Ceftazidime 2g IV q8h <i>AND/OR</i> Aminoglycoside <i>ADD</i> Vancomycin 1g IV if suspecting MRSA or Central Venous Catheter present	Aztreonam 2g IV q8h <i>AND</i> Levofloxacin 500 mg IV q24h <i>ADD</i> Vancomycin 1g IV if suspecting MRSA or Central Venous Catheter present.
Unknown Source	Cefepime 2g IV q12h+Metronidazole 500 mg IV q8h and Vancomycin 1g IV	Vancomycin 1g IV and Aztreonam 1g IV q8h and Metronidazole 500mg IV q8h *
Diabetic Ulcer	Cefepime 2g IV q12h +Metronidazole 500 mg IV q8h * and Vancomycin 1g IV	Vancomycin 1g IV and Aztreonam 1g IV q8h and Metronidazole 500 mg IV q8h *

Please contact a Pharmacist for additional options: San Pedro: (310) 514-5265 Torrance: at x35770 (310 303-5770)

Sepsis Specific Information

Infusion Times for Selected Antibiotics

30 minutes	60 minutes	90 minutes
cefepime	levofloxacin 500 mg	levofloxacin 750 mg
ceftazidime	acyclovir	vancomycin >1 gm
ceftriaxone	azithromycin	
ampicillin	Gentamicin 3 mg/kg	
aztreonam	metronidazole *	
clindamycin	vancomycin 1 gm	

Yellow Highlighted Drugs Meet Single Agent Criteria for sepsis– infuse first if possible.

* Metronidazole does not meet Sepsis Antibiotic Criteria Measure – If ordered, give after Monotherapy or Combo therapy antibiotics.

When treating initially for Sepsis, the agents below are considered too narrow spectrum to be used as monotherapy. To provide adequate gram negative AND gram positive coverage, initial therapy should be utilized with combinations as seen below to meet Sepsis Criteria if other first line agents cannot be employed.

Combination Antibiotic Therapy Table

Column A	Column B
Aminoglycosides + OR Aztreonam OR Ciprofloxacin	Cephalosporins (1st and 2nd Generation) OR Clindamycin IV OR Daptomycin OR Glycopeptides OR Linezolid OR Macrolides OR Penicillins

NOTE: Metronidazole (Flagyl) is not represented on any table because it is not approved for monotherapy and if given, must be given with 2 other combination antibiotic therapy drugs. Since giving those 2 antibiotic therapy drugs will allow Value “1” to be chosen, the metronidazole is not required to be administered or abstracted.

Restricted Formulary Antimicrobials

The following antibiotics are restricted to ordering by infectious disease specialists:

- a. Ceftaroline (Teflaro)
- b. Colistimethate (Colistin) intravenous and intramuscular route
- c. Daptomycin (Cubicin)
- d. Liposomal Amphotericin preparations (Ambisome/Abelcet)
- e. Micafungin (Mycamine)
- f. Piperacillin/Tazobactam (Zosyn)
- g. Quinapristin/dalfopristin (Synercid)
- h. Tigecycline (Tygacil)
- i. Voriconazole (Vfend) intravenous form

The following antibiotics can only be ordered by infectious disease specialists or Pulmonologists/Critical Care Specialists

- i. Linezolid intravenous form
- ii. Voriconazole (Vfend) oral/intravenous form

When pharmacy receives an order for a restricted antibiotic

- a. The pharmacist reviews the Medical Staff Directory to ascertain the physician's specialty to see if they are approved to order the antibiotic. If they are not an approved prescriber, pharmacy will attempt to contact them to let them know the antibiotic is restricted to specialists and offer an alternative choice where applicable.
- b. If the physician is not available, the pharmacy will dispense one dose of the medication. The physician will be contacted and must consult the appropriate specialty to continue the medication.

. Please Note: Less than 10 isolates... antibiogram not statistically relevant.

Providence Little Company of Mary Medical Center - San Pedro: January - December 2018

 ANTIBIOGRAM Reported as % Fully Susceptible	# OF ISOLATES	AMIKACIN	AMPICILLIN	AMPICILLIN/SULBACTAM	CEFAZOLIN	CEFTAZIDIME	CEFTRIAXONE	CIPROFLOXACIN	CLINDAMYCIN	ERYTHROMYCIN	GENTAMICIN	MEROPENEM	LEVOFLOXACIN	NITROFURANTOIN	OXACILLIN	PENICILLIN G	PIPERACILLIN/TAZOBACT.	TETRACYCLINE	TOBRAMYCIN	TRIMETHOPRIM/SULFA.	VANCOMYCIN	GENT 500 (SYNERGY)
GRAM NEGATIVES																						
ACINETOBACTER BAUMANNII COMPLEX	15	50		55		45	0	55			55	50	55				54		64	67		
ESCHERICHIA COLI	878		45		77	84	83	65			84	100	65	95			96		83	68		
ENTEROBACTER CLOACAE	6		0		0	100	100	100			100	100	100	100			100		100	100		
KLEBSIELLA(ENTEROBACTER) AEROGENES	16		0		0	81	81	100			100	100	100	31			81		100	100		
KLEBSIELLA PNEUMONIAE	46		0		76	93	94	94			98	100	94	74			96		94	85		
PROTEUS MIRABILIS	105		67		68	94	96	54			88	100	62	0			100		89	66		
PSEUDO. AERUGINOSA	220	97				84		73			80	66	67				83		93			
SERRATIA MARCESCENS	21		0		0	95	95	95			100	91	95	0			60		80	95		
STENO. MALTOPHILIA	24												92							100		
GRAM POSITIVES																						
ENTEROCOCCUS FAECIUM	44							4					15	21		12		50			36**	62
ENTEROCOCCUS FAECALIS	43							67					70	99		95		26			96**	66
STAPHYLOCOCCUS AUREUS	349			56	63			53	80*	49			54	100	62	10		92		95	100	
“ COAGULASE NEGATIVE	51			25	39			69	46*	34			71	100	37	10		96		71	100	
STREP. PNEUMONIAE	25															91^						

NOTES: Data compiled by Anneli A. Orbon, CLS (Microbiology Supv. - PLCMMCT/SP Consolidated Lab)

Shaded boxes represent >10% increased resistance from last period.

* Not corrected for inducible clindamycin resistance.

** Of the Vancomycin resistant strains, 57 % were susceptible to Rifampin, 53 % to Chloramphenicol, 89% to Linezolid, and 75% to Synercid.

The following show a >10% increased resistance from last period: Chlor,Syn. Please Note:There are no CLSI guidelines for interpreting Bacitracin susceptibility therefore, it cannot be reported.

^ 1 penicillin intermediate & 1 resistant Strep. pneumoniae isolates. Please Note: Less than 10 isolates... antibiogram not statistically relevant.

Providence Little Company of Mary Medical Center - Subacute Care Center: January - December 2018

PROVIDENCE Health & Services California ANTIBIOGRAM Reported as % Fully Susceptible GRAM NEGATIVES	# OF ISOLATES	AMIKACIN	AMPICILLIN	AMPICILLIN/SULBACTAM	CEFAZOLIN	CEFTAZIDIME	CEFTRIAXONE	CIPROFLOXACIN	CLINDAMYCIN	ERYTHROMYCIN	GENTAMICIN	MEROPENEM	LEVOFLOXACIN	NITROFURANTOIN	OXACILLIN	PENICILLIN G	PIPERACILLIN/TAZOBACT.	TETRACYCLINE	TOBRAMYCIN	TRIMETHOPRIM/SULFA.	VANCOMYCIN	GENT 500 (SYNERGY)
ACINETOBACTER BAUMANII COMPLEX	41	56		68		54	7	59			59	63	59				55		59	40		
ESCHERICHIA COLI	142		22		38	52	50	21			60	99	21	94			77		35	48		
ENTEROBACTER CLOACAE	0		0		0	N/A	N/A	N/A			N/A	N/A	N/A	N/A			N/A		N/A	N/A		
KLEBSIELLA(ENTEROBACTER) AEROGENES	4		0		0	25	25	100			100	100	100	0			0		100	100		
KLEBSIELLA PNEUMONIAE	12		0		50	73	75	43			55	100	43	33			73		36	82		
PROTEUS MIRABILIS	117		33		45	78	80	12			58	100	35	0			100		63	26		
PSEUDO. AERUGINOSA	327	98				76		58			67	49	48				72		80			
SERRATIA MARCESCENS	32		0		0	97	97	100			97	100	100	0			100		61	94		
STENO. MALTOPHILIA	45												87							100		
GRAM POSITIVES																						
ENTEROCOCCUS FAECIUM	43							0					0	43		0		38			18**	66
ENTEROCOCCUS FAECALIS	68							22					22	80		96		20			58**	36
STAPHYLOCOCCUS AUREUS	72			12	19			19	62*	57			19	100	20	3		53		99	100	
“ COAGULASE NEGATIVE	5			40	40			40	25*	25			25	100	40	0		100		100	100	
STREP. PNEUMONIAE	0															N/A^						

NOTES: Data compiled by Anneli A. Orbon, CLS (Microbiology Supv. - PLCMMCT/SP Consolidated Lab)

Shaded boxes represent >10% increased resistance from last period.

* Not corrected for inducible clindamycin resistance.

** Of the Vancomycin resistant strains, 84% were susceptible to Rifampin, 47% to Chloramphenicol, 85% to Linezolid, and 85% to Synercid.

The following show a >10% increased resistance from last period: None. Please Note: There are no CLSI guidelines for interpreting Bacitracin susceptibility therefore, it cannot be reported.

^ No penicillin intermediate or resistant Strep. pneumoniae isolates. Please Note: Less than 10 isolates... antibiogram not statistically relevant.

Providence Little Company of Mary Medical Center - TCC/TCU: January - December 2018

 ANTIBIOGRAM Reported as % Fully Susceptible GRAM NEGATIVES	# OF ISOLATES	AMIKACIN	AMPICILLIN	AMPICILLIN/SULBACTAM	CEFAZOLIN	CEFTAZIDIME	CEFTRIAXONE	CIPROFLOXACIN	CLINDAMYCIN	ERYTHROMYCIN	GENTAMICIN	MEROPENEM	LEVOFLOXACIN	NITROFURANTOIN	OXACILLIN	PENICILLIN G	PIPERACILLIN/TAZOBACT.	TETRACYCLINE	TOBRAMYCIN	TRIMETHOPRIM/SULFA.	VANCOMYCIN	GENT 500 (SYNERGY)
ACINETOBACTER BAUMANNII COMPLEX	2	0		0		0	0	0			0	0	0				0		0			
ESCHERICHIA COLI	66		48		70	73	73	67			88	100	67	97			89		86	78		
ENTEROBACTER CLOACAE	0		0		0	N/A	N/A	N/A			N/A	N/A	N/A				N/A		N/A	N/A		
KLEBSIELLA(ENTEROBACTER) AEROGENES	2		0		0	100	100	100			100	100	100	0			100		100	100		
KLEBSIELLA PNEUMONIAE	2		0		50	50	50	50			100	100	50	0			50		50	100		
PROTEUS MIRABILIS	14		71		77	100	100	93			93	100	93	0			100		100	93		
PSEUDO. AERUGINOSA	22	100				96		96			100	100	96				96		100			
SERRATIA MARCESCENS	0		0		0	N/A	N/A	N/A			N/A	N/A	N/A	0			N/A		N/A	N/A		
STENO. MALTOPHILIA													N/A							N/A		
GRAM POSITIVES																						
ENTEROCOCCUS FAECIUM	28							7					7	9		7		33			13**	73
ENTEROCOCCUS FAECALIS	21							62					62	100		90		29			100**	61
STAPHYLOCOCCUS AUREUS	10			50	20			20	78*	22			20	100	20	0		100		100	100	
“ COAGULASE NEGATIVE	1			0	0			0	0*	0			0	0	0	0		100		0	100	
STREP. PNEUMONIAE	0															N/A^						

NOTES: Data compiled by Anneli A. Orbon, CLS (Microbiology Supv. - PLCMMCT/SP Consolidated Lab)

Shaded boxes represent >10% increased resistance from last period.

* Not corrected for inducible clindamycin resistance.

** Of the Vancomycin resistant strains, 0% were susceptible to Rifampin, 62% to Chloramphenicol, 85% to Linezolid, and 100% to Synercid.

The following show a >10% increased resistance from last period:Rif, Chlor. Please Note:There are no CLSI guidelines for interpreting Bacitracin susceptibility therefore, it cannot be reported.

^ No penicillin intermediate or resistant Strep. pneumoniae isolates. Please Note: Less than 10 isolates... antibiogram not statistically relevant.

Providence Little Company of Mary Medical Center - Torrance: January - December 2018

 ANTIBIOGRAM Reported as % Fully Susceptible GRAM NEGATIVES	# OF ISOLATES	AMIKACIN	AMPICILLIN	AMPICILLIN/SULBACTAM	CEFAZOLIN	CEFTAZIDIME	CEFTRIAXONE	CIPROFLOXACIN	CLINDAMYCIN	ERYTHROMYCIN	GENTAMICIN	MEROPENEM	LEVOFLOXACIN	NITROFURANTOIN	OXACILLIN	PENICILLIN G	PIPERACILLIN/TAZOBACT.	TETRACYCLINE	TOBRAMYCIN	TRIMETHOPRIM/SULFA.	VANCOMYCIN	GENT 500 (SYNERGY)
ACINETOBACTER BAUMANNII COMPLEX	17	78		42		46	23	54			75	54	46				42		75	90		
ESCHERICHIA COLI	2379		46		78	86	87	71			86	100	68	97			96		85	70		
ENTEROBACTER CLOACAE	21		0		0	95	95	91			100	100	91	29			86		95	95		
KLEBSIELLA(ENTEROBACTER) AEROGENES	70		0		0	88	89	97			99	100	97	25			87		99	99		
KLEBSIELLA PNEUMONIAE	178		0		79	91	91	90			96	97	90	47			93		92	81		
PROTEUS MIRABILIS	286		69		74	92	93	70			83	100	75	0			99		87	69		
PSEUDO. AERUGINOSA	426	98				88		76			87	88	74				91		94			
SERRATIA MARCESCENS	35		0		0	100	100	97			100	100	97	0			100		94	100		
STENO. MALTOPHILIA	38												95							100		
GRAM POSITIVES																						
ENTEROCOCCUS FAECIUM	125							15					21	21		14		30			31**	76
ENTEROCOCCUS FAECALIS	407							72					73	98		98		24			98**	72
STAPHYLOCOCCUS AUREUS	927			51	66			56	75*	48			58	100	66	17		93		95	100	
“ COAGULASE NEGATIVE	123			30	49			51	43*	22			50	91	44	11		76		56	100	
STREP. PNEUMONIAE	59															86^						

NOTES: Data compiled by Anneli A. Orbon, CLS (Microbiology Supv. - PLCMMCT/SP Consolidated Lab)

Shaded boxes represent >10% increased resistance from last period.

* Not corrected for inducible clindamycin resistance.

** Of the Vancomycin resistant strains, 15% were susceptible to Rifampin, 88% to Chloramphenicol, 91% to Linezolid, and 37% to Synercid.

The following show a >10% increased resistance from last period:None. Please Note:There are no CLSI guidelines for interpreting Bacitracin susceptibility therefore, it cannot be reported.

^ 2 penicillin intermediate & 4 penicillin resistant Strep. pneumoniae isolates. Please Note: Less than 10 isolates... antibiogram not statistically relevant.