Antimicrobials Restrictions

SEE ANTIMICROBIAL RESTRICTIONS POLICY – MM.04.02.23 FOR MORE DETAILS

Ertapenem (Invanz): **USAGE RESTRICTED**

1. Peri-operative one time dose
2. Diabetic foot infections
3. Orders by infectious disease physicians
4. Pediatric patients
5. Systemic infections secondary to ESBL producing organisms
6. Single dose administration to facilitate discharge to home or ECF

Meropenem (Merrem): **USAGE RESTRICTED**

1. Multidrug-resistant (MDR) organisms that remain susceptible to carbapenems
2. Pediatric/NICU patients
3. Meningitis caused by Pseudomonas aeruginosa
4. Empiric treatment in patients with suspected resistant gram negative infection and recent documented history of MDR organism
5. Failure of broad spectrum gram negative antibiotic therapy after 48 hours

Daptomycin (Cubicin): **USAGE RESTRICTED**

1. Restricted to infectious disease physicians ONLY for patient meeting criteria for use

Linezolid (Zyvox): **USAGE RESTRICTED**

1. Infection caused by Staphylococcus sp. to beta-lactams AND a serious allergy to vancomycin
2. Infection caused by Staphylococcus sp. with a vancomycin MIC greater than 2
3. Transition of therapy to facilitate discharge
4. Systemic infection with documented Enterococcus sp. resistant to vancomycin and ampicillin
5. Enterococci cystitis resistant to ampicillin, vancomycin, nitrofurantoin, fosfomycin, tetracycline
6. Use oral route when possible – 100% bioavailable

Ceftaroline (Teflaro): **USAGE RESTRICTED**

1. Restricted to infectious disease physician ONLY for salvage therapy for bacteremia or endocarditis cause by MRSA after failure of vancomycin or daptomycin therapy

Ceftazidime/avibactam: **USAGE RESTRICTED**

1. Restricted to infectious disease physicians and for 24 to 48 hour period pending infectious disease consultation for the treatment of carbapenem resistant Enterobacteriaceae (CRE)

Ceftolozane/tazobactam: **USAGE RESTRICTED**

1. Restricted to infectious disease physicians for the treatment of MDR Pseudomonas aeruginosa infections with documented resistance to other agents or infections in which preferred therapy is unavailable or contraindicated (see policy for details)

Fidaxomicin: **USAGE RESTRICTED**

1. Restricted to infectious disease physicians for patients who have been previously treated for C. difficile with oral vancomycin or patients who have at least one recurrence of C. difficile.

Aztreonam: **USAGE RESTRICTED**

1. Restricted to patients with one of the following criteria:
   a. Patients with true IgE mediated allergies (anaphylaxis, urticarial, laryngeal edema, bronchospasm, hypotension, and pruritic rash) to cephalosporins
   b. Patients with history or suspected multi-drug resistant gram negative infection
   c. Infectious disease consultation

Fluoroquinolone: **USAGE RESTRICTED**

1. Use in patients with documented beta-lactam allergy
2. Restricted to infectious disease physicians and intensivists
3. If criteria not met, pharmacists will interchange to alternative based on indication

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 Chonic 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 OR S. Epidermidis	None MecA	None Methicillin resistance
Enterococcus Faecalis OR E. Faecium	None Van A or Van B	None Vancomycin resistance
Escherichia Coli, Klebsiella Pneumoniae, Klebsiella Oxytoca	None CTX-M OXA or NDM	None ESBL producing organism CRE/MDR organism*
Pseudomonas Aeruginosa	None VIM or IMP	None MDR organism*
Acinetobacter sp.	None IMP or OXA	None MDR organism*
Proteus sp. OR Enterobacter sp.	None CTX-M	None ESBL producing organism*

**ID Consult Recommended*

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	Cefazolin* + Metronidazole OR Ertapenem	Levofloxacin + Metronidazole
Gynecological	Cefazolin*	Clindamycin + 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*

Dignity Health.
St. Joseph's Medical Center

Antimicrobial Guideline

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Approved by the Infection Control and Antibiotic Stewardship Committees

2021 Recommended Empiric Antibiotic Therapy of Selected Infections in Adults Requiring Hospitalization

INFECTION	1ST LINE	ALTERNATIVE / ALLERGY
Community Acquired Pneumonia	Ceftriaxone + Azithromycin	Levofloxacin
Aspiration Pneumonia	Ceftriaxone ± Metronidazole	Levofloxacin + Metronidazole
UTI, Uncomplicated	TMP/SMX	Levofloxacin **OR** Nitrofurantoin
UTI, Complicated	Ceftriaxone	Levofloxacin
Sepsis of Unknown Etiology	Cefepime ± Vancomycin	Zosyn ± Vancomycin
Intra-Abdominal Sepsis	Ceftriaxone + Metronidazole	Levofloxacin + Metronidazole
Suspected or confirmed C. difficile infection	Vancomycin PO	Fidaxomicin
Bacterial Meningitis	Ceftriaxone + Vancomycin ± Ampicillin	Ceftriaxone + Vancomycin ± Bactrim
Health Care Associated Meningitis	Ceftriaxone + Vancomycin ± Ampicillin	Meropenem + Vancomycin
Pelvic Inflammatory Disease	Cefoxitin + Doxycyline	Clindamycin + Gentamicin
Cellulitis, Uncomplicated	Cefazolin **OR** Nafcillin	Vancomycin **OR** Clindamycin
Cellulitis, Complicated OR Diabetic Foot Ulcer	Unasyn ± Vancomycin	Levofloxacin ± Vancomycin
Febrile Neutropenia (ANC less than 500)	Cefepime **OR** Zosyn	Aztreonam + Metronidazole + Vancomycin

Implementation of an antimicrobial stewardship program will help ensure that hospitalized patients receive the right antibiotic, at the right dose, at the right time, and for the right duration. As a result, there is reduced mortality, reduced risks of Clostridium difficile-associated diarrhea, shorter hospital stays, reduced overall antimicrobial resistance within the facility, and cost savings.

St. Joseph's Medical Center - Stockton

Antibiogram 01/01/2020- 12/31/2020

		Penicillins								Cephalosporins					Carbapenems			Aminoglycosides			Fluoroquin-olones		Other								
Percent (%) susceptible	# Tested (n)	Ampicillin	Amoxicillin	Oxacillin	Penicillin	Piperacillin/Tazo	Ticarcillin	Ticar/Clav Acid	Amp/Sulbactam	Cefazolin	Cefepime	Cefotaxime	Ceftazidime	Ceftriaxone	Ertapenem	Imipenem	Meropenem	Amikacin	Gentamicin	Tobramycin	Ciprofloxacin	Levofloxacin	Clindamycin	Erythromycin	Linezolid	Rifampin	Trimeth/Sulfa	Daptomycin	Tetracycline	Vancomycin	Nitrofurantoin*
Gram negative rods:																															
Acinetobacter baumanii	61	0				45		44	70		56		54	25	0	83		96	92	95	49	49					60				
Citrobacter freundii	61	0				77			0	0	97		75	72	97	97		100	92	88	88	88									87
Citrobacter koseri	60	0				93				95	98		97	97	100	100		97	100	97	97	97									
Enterobacter cloacae	109	0				69			0	0	92		71	72	92	97		100	93	92	90	91					86				19
Escherichia coli	3004	44				94			53	75	82		82	82	100	100		100	85	85	69	69					69				93
Klebsiella aerogenes	85	0				76			0	0	100		79	78	99	100		100	99	99	100	100					99				13
Klebsiella oxytoca	92	0				97			89	82	93		93	93	100	100		100	96	97	98	99					83				93
Klebsiella pneumoniae	724	0				86			74	82	84		84	84	99	99		99	90	88	86	89					82				22
Morganella morganii	85	0				96			6	0	93		80	85	100	79		100	79	93	56	62					46				0
Proteus mirabilis	462	74				99			85	82	92		91	89	99			100	91	92	67	73					69		0		0
Providencia stuartii	55	0				93			13	0	93		73	87		95		98	0	0	35	31							0		0
Pseudomonas aeruginosa	523	0				88	78		0		88	0	87	0	0	94	97	98	94	98	87	84					0		0		
Serratia marcescens	92	0				93			0	0	96		95	93	97			99	99	92	85	88									0
Stenotrophomonas maltophilia	77	0					0		0			0	57	0	0	0	0	0	0	0		92					95				
Gram positive cocci:																															
Enterococcus faecalis	861	98																			*67	*67			100			100		89	97
Enterococcus faecium	159	74																			*5	*6			100					27	43
Staphylococcus aureus	1109			51															93		54	54	60	36	100	99	95	100	92	100	99
Staphylococcus epidermidis	266			31															87		60	60	57	29	100	97			79	100	97
Streptococcus pneumoniae	58				82							100		93								98					81		85	100	

* Urinary Tract isolates only Non urine

>= 5% more resistant 2020 than 2019

>= 5% more sensitive 2020 than 2019

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. 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.

D. 49% of the Staphlococcus 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.

E. 0% of the Streptococcus pneumoniae isolates were intermediate for penicillin. High doses of IV penicillins or ampicillin can be used to treat penumococcal pneumonia caused by strains in the intermediate category, however patients with pneumococcal meningitis require therapy with maximum doses of ceftriaxone or cefotaxime.

F. 16% of Haemophilus influenzae are ß-lactamase positive.

G. When considering high level aminoglycoside synergy for Enterococcus faecalis and Enterococcus faecium:
17% of E. faecalis isolates are resistant to Gentamicin, while 22% are resistant to Streptomycin.
4% of E. faecium (out of 26) isolates are resistant to Gentamicin, and 54% are resistant to Streptomycin.